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ABSTRACT

This study on self-confrontation in teacher training presents the students' repeated assessments of subject-object relations both during the experiment and six weeks and two years after the experiment. For the experiment the student teachers were confronted with their own video-recorded micro-lessons; identification experiences and self-evaluation were examined for differences in level. The assessments made by the student teachers with an assessment and evaluation schedule were examined both for differences in level and for structural relations and similarities. One part of the self-confrontation experiment consisted of assessment of the video-recorded material by education experts. The experts' assessments were used in studying whether and to what extent the teacher training had firstly, influenced the student teachers assessments in relation to those made by the experts, and secondly, led to larger structural relations or similarities between the student teachers' and the experts' assessments of the video-recorded material. Finally, a study was also made of the student teachers' repeated rankings of a number of alternative tutors. (Author)

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SELF-CONFRONTATION IN TEACHER TRAINING: STUDENT TEACHERS ASSESS THEIR OWN VIDEO-TAPED MICRO-LESSONS – A FOLLOW-UP STUDY

No. 50 October 1975

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SELF-CONFRONTATION IN TEACHER TRAINING: STUDENT TEACHERS ASSESS THEIR OWN VIDEO-TAPED MICRO-LESSONS - A FOLLOW-UP STUDY

Bernhard Bierschenk

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Student teachers have been confronted with their own video-recorded micro-lessons as part of a self-confrontation experiment. This report presents the students' repeated assessments of subject-object relations both during the experiment, and six weeks and two years after the experiment. Identification experiences and self-evaluation were examined for differences in level. The assessments made by the student teachers with an assessment and evaluation schedule were examined both for differences in level and fo structural relations and similarities. One part of the self-confrontation experiment consisted of assessment of the video-recorded material by educational experts. The experts' assessments have been used in studying whether and to what extent the teacher training has firstly, influenced the student teachers' assessments in relation to those made by the experts and secondly, led to larger structural relations or similarities between the student teachers' and experts' assessments of the video-recorded material. Finally, a study has also been made of the student teachers' repeated rankings of a number of alternative tutors.

Indexed: Self-confrontation, micro-lesson, teacher training, experiment, self-assessment, closed circuit television, video-recording, educational experts, regression analysis.

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1. OUTLINE OF REPORTING PROCEDURE

The eagerness to purvey factual knowledge that had been the hallmark of the school during the 1950s was transformed in the ´60s into a desire to train the pupils to "know how". The school of today - and probably that of tomorrow - is marked by its zeal for developing personality, e.g. good self-knowledge, tolerance and insight into intrapersonal and interpersonal relations.

The psychological research of the ´50s that sought eagerly to increase our understanding of "anxiety" became in the 1960s a mapping of "alienation". Today psychological research is making an unprecedented effort to increase our knowledge of the concept of "confrontation". The aspect that has attracted most attention is "externally mediated self-confrontation" via closed circuit television and video-recording (CCTV/VR), since the methods used earlier within both psychotherapy and education proved to be insufficient to meet the growing psychological and social needs of our time.

The work presented here has started from the hypothesis that repeated and externally mediated confrontations with their own video-taped micro-lessons should influence student teachers´ perception and evaluation of teaching processes. Consequently student teachers´ have assessed their video-taped micro-lessons many times and at varying intervals.

The assessment and evaluation schedule F III has been the main instrument in a self-confrontation experiment and has also been used in the repeated confrontations. The second instrument used is the identification and self-evaluation schedule F II.

Analyses have been carried out of repeated confrontations during an experiment (Analysis 1) and repeated confrontations six weeks and two years after an experiment (Analysis 2).

Analysis 1. Repeated confrontations during an experiment

By means of "externally mediated confrontations via CCTV/VR" with their own teaching behaviour in micro-lessons, student teachers are expected to have time to become acquainted with their own image. Behaviours that have become unconscious (routine) or automatic must first be made conscious again (de-automated) before they can be changed. The teacher´s perception and assessment of a situation is what finally determines whether he manages to predict successfully the consequences of alternative behaviours.

In order to study how repeated experiences of confrontation with the same video-taped micro-lesson influences student teachers´ perception and assessment of teaching processes, they were asked to perceive and evaluate each micro-lesson three times during the course of the experiment.

The student teachers made their assessments with the assessment and evaluation schedule F III. These assessments have then been analyzed by means of ANOVA. The results are presented in Chapter 6.

For the purpose of studying "concept validity", a factor analysis was carried out for the identification and self-evaluation schedule F II and is presented in Chapter 7. The F II schedule also asks the student teachers to state their views on nine alternative forms of tutoring. The result of this analysis is given in Chapter 8.

Analysis 2. Repeated confrontations six weeks and two years after an experiment

The analyses described in this part of the report concern a long-term follow-up of the student teachers' self-evaluation. At the end of the student teachers' second term at the school of education (six weeks after a self-confrontation experiment) and at the end of their training at the school of education (sixth term), the student teachers' were again asked to assess the micro-lessons video-taped in the experiment. The analyses reported here were carried out for the purpose of studying if and to what extent the teacher training had had any effect on the student teachers' perception and evaluation of the second term's video-recorded micro-lessons.

The ANOVA reported in Chapter 9 was based on the student teachers' assessments by means of schedule F III. Since the assessments of the video-taped material made by educational experts are also still available, we have been able as during the experiment to study if and to what extent the teacher training has resulted in differences between the student teachers' assessments in the sixth term and the assessments made by the educational experts in the second term. The ANOVA of the differences between the mean assessment of the experts and the student teachers' self-assessment is presented in Chapter 9.4.

In order to study the structural relation between the student teachers' self-assessments six weeks and two years after the experiment, canonical correlation analyses have been carried out. The result of these is given in Chapter 10.1. The assessments of the educational experts have also been used for a study of the structural relation between the student teachers' self-assessment in the sixth term and experts' assessment in the second term. The result of these analyses is given in Chapter 10.2. In parenthesis it should perhaps be mentioned that canonical correlations for the assessments of student teachers and educational experts during the second term are to be found in Appendix 9.

All the student teachers who participated in the experiment assessed the video-taped material by means of the identification and self-evaluation schedule F II six weeks and two years after the experiment. These assessments were then used as the basis for the ANOVA presented in Chapter 11. Finally a study was made of the views stated by the student teachers six weeks and two years after the experiment, of the nine alternative forms of tutoring listed in the F II schedule. The result of this analysis is given in Chapter 12.

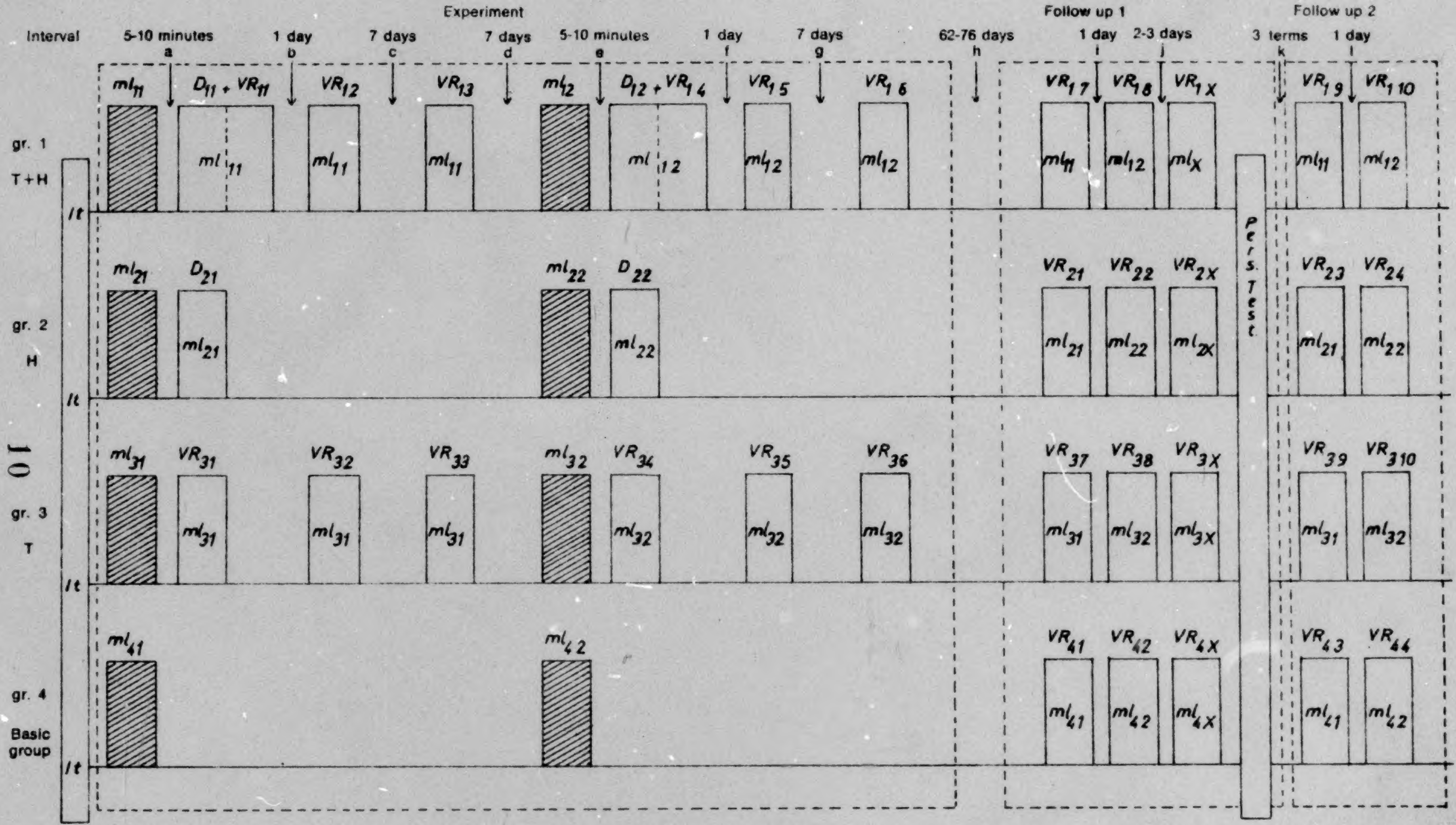
In conclusion it should be mentioned that the analyses presented in this report consist of a "replica" of the experiment's analyses, i.e. the student teachers have made new assessments but the video-taped material is identical with that used in the experiment.

2. THE INVESTIGATION AS PART OF A SELF-CONFRONTATION EXPERIMENT

In 1968 and 1969 an experimental study with the title Self-confrontation via closed-circuit television in teacher training was conducted at the Department of Educational and Psychological Research, Malmö School of Education. The self-confrontation experiment was an attempt to modify the perception and evaluation of the student teachers by means of self-confrontation mediated by video-recording and dyadic confrontation in the form of traditional tutoring.

The experiment was designed in such a way as to enable us to study both the way in which the student teachers selected information and the changes in the structure of perception and evaluation that resulted from video-mediated self-confrontation and traditional tutoring. 96 women student teachers who had been admitted to the training course for middle school teachers (grades 4-6) at the Malmö School of Education in the autumn terms of 1967 and 1968 participated in the experiment. A factorial design was worked out, to provide the greatest possible control over the different ways in which the results of the investigation could be interpreted. But in order to make the design more precise, the 2 x 2 factorial design (Fig. 1) was increased by two so called precision factors. Factor V symbolizes an assessment and evaluation schedule (F III) and Factor A states the aspects in this instrument (perception, evaluation). The entire ANOVA model that has formed the basis of the results presented hitherto from this experiment can be written as A, U, T, H, I (TH), V, in which I denotes the individual factor.

By traditional tutoring (Factor H) is meant a dyadic confrontation, in which the student teacher is counselled by a lecturer in methodology after having taught a school class. In the same way as during the period of practice teaching, the tutor observed the student teacher during the experiment, i. e. made notes that were thought to be important for the subsequent counselling session. The tutor had the normal amount of time for going through the lesson with the student teacher (approx. 15-20 min.). By externally mediated self-confrontation via closed-circuit television and video-recording (CCTV/VR) is meant here a confrontation with one's own behaviour in teaching situations via closed-circuit television and video-recording. The process also involves external confrontation with one's own expressive behaviour. Confrontation experiences could be described as a process of de-automatation of the usual way of experiencing oneself. Thus this T factor can be said to involve an external self-distancing in time and space. To


Experiment
Follow up 1
Follow up 2
Interval
5-10 minutes
a
1 day
b
7 days
c
7 days
d
5-10 minutes
e
1 day
f
7 days
g
62-76 days
h
1 day
i
2-3 days
j
3 terms
k
1 day
l
gr. 1
T + H
gr. 2
H
gr. 3
T
gr. 4
Basic group
It
ml11
D11 + VR11
VR12
VR13
ml12
D12 + VR14
VR15
VR16
VR17
VR18
VR1X
VR19
VR110
ml11
ml11
ml11
ml12
ml12
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ml12
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VR35
VR36
VR37
VR38
VR3X
VR39
VR310
ml31
ml31
ml31
ml32
ml32
ml32
ml31
ml32
ml3X
ml31
ml32
ml41
ml42
VR41
VR42
VR4X
VR43
VR44
ml41
ml42
ml4X
ml41
ml42
Pers. Test

Abbreviations:

D_{11-12}: Dyadic confrontation in connection with traditional tutoring, experimental group 1 (first index figure)

D_{21-22}: Dyadic confrontation in connection with traditional tutoring, experimental group 2 (first index figure)

gr: Group

H: Experimental factor stating influence of traditional tutoring in the form of a dyadic confrontation

It: Initial test (group test)

ml: Micro-lesson. The first index figure refers to the experimental group, the second index figure to micro-lessons 1 and 2 respectively

ml: Micro-lesson X is a micro-lesson that has been held by subject II during the experiment of spring term 1968

Pers.test: Personality test: testbattery at end of second term

T: Experimental factor stating influence of external mediated self-confrontation by means of CCTV/VR

VR: Video-recordings. The first index figure refers the experimental group, the second index figure refers to the recording occasion

Figure 1. The design of the experiment.

avoid or balance possible sources of error connected with camera angle or different editing methods (spatial selection, temporal selection) two cameras were used, linked via a mixer for registration of the subject's behaviour, while the behaviour of the pupil group was registered by a third, static camera. In order to make it possible to study the facial expressions of the subjects, a close-up was registered every third minute by means of zooming. The close-up lasted for 10 seconds.

The teaching took the form of micro-lessons (Factor U). A few comments can be made on the pupils, teaching subjects and length of lessons:

1. Pupils participating in the micro-lessons were to be representative of the school level in which the aspirant teacher was later to teach. The pupil groups (half classes) that took part in the school year 1969/70 all came from the fourth grade of Munkhätte School in Malmö. No differences in ability or social group were found between the pupil groups divided between the four experimental groups.

2. The teaching themes chosen were the animals of northern Sweden: Lemming, bear, wolf, lynx, golden eagle, grouse and wolverine. These subjects were chosen since the lecturers considered the methodology to be relatively simple. At this level there is no great variation between the techniques needed for teaching about the different species or in the systematic arrangement of the teaching. Biology also had the advantage that all the student teachers had access to abundant, very similar concrete material to illustrate the teaching.

3. The length of lessons, i.e. the video-recorded teaching time, was 15 minutes. The subjects were given an additional 5 minutes warming-up time in which to get acquainted with the pupils. The brevity of the lesson forced the student teachers to keep to the subject and imposed a natural restriction on too wide a variety of teaching activities.

The development of the assessment and evaluation schedule F III (Factor V) is based on an extensive content analysis of the student teachers' spontaneous oral comments on self-confrontation. Thus the statements included in the instrument reflect problem areas that the student teachers themselves have taken up. The problem areas that emerged from the simultaneous comments of the student teachers during the self-confrontation process have been categorized in accordance with the following six a priori constructed dimensions:

1. ego-ego relation
2. ego-pupil relation
3. ego-NPO relation
   (relation between ego and non personal object)
4. pupil-ego relation
5. pupil-pupil relation
6. pupil-NPO relation

These dimensions are defined in the assessment and evaluation schedule F III by means of a total of 79 statements, each with seven-point bipolar assessment scales.

The instrument has been constructed in order to quantify the ability of the individual (a) to assimilate information (perceive) and (b) to process information (evaluate). These two aspects are represented by Factor A.

The factorial design shown in Figure 1 is a more complex form of Campbell & Stanley's design No. 6, "Posttest-Only Control Group Design". This design checks all the eight sources of error (see Campbell & Stanley, 1963, p. 178) that could invalidate the internal validity of the experiment. That the experiment should in addition have an external validity is a prerequisite for being able to generalize the results to the individual population concerned.

A detailed discussion of the experiment, its internal and external validity and the validity and reliability of the measuring instrument (F III) is to be found in Bierschenk (1972 a).

Educational experts have assessed all the student teachers' micro-lessons (192) in accordance with the assessment and evaluation schedule F III. The assessments of the experts have been examined for inter-judge agreement. Subsequently the analysis of variance model described was used to study whether the experimental influence, with the mean assessment of the experts as criterion, had resulted in demonstrable effects on the teaching behaviour of the student teachers. In addition the observations of the educational experts and the student teachers have been studied for possible relations. For this purpose Hotelling's (1935) canonical correlation analysis was used.

All the analyses of results published hitherto refer to the influence that followed immediately after the respective micro-lesson, i.e. $D_{11} + VR_{11}$, D_{21}, VR_{31}, $D_{12} + VR_{14}$, D_{22}, VR_{34}.

The main result of this experiment is that neither traditional tutoring nor externally mediated self-confrontation via CCTV/VR noticeably influenced the perception or evaluation structure of the student teachers. The study of the size and strength of the effects in the F tests showed that the effects obtained cannot be considered as a satisfactory basis for more detailed interpretations. Conceivable explanations of this result have been suggested in Bierschenk (1972 a, p. 266):

1. The length of the influence during the experiment has been too short to enable the different experimental conditions to achieve observable effects.

2. Self-confrontation demands systematic training in receiving and processing first-hand information, i.e. non-verbally mediated "self"-information.

3. Self-confrontation leads to a temporary disorganization or de-automatation which in the first phase produces in many people surprise, fear, shock and/or defensive reactions towards the experience of self-confrontation.

4. The tutor has not succeeded in influencing the student teachers to any great extent, since student teachers have not yet developed suitable test criteria, i.e. educational-psychological norms.

5. Tutor and student teachers avoid a relevant critical analysis, e.g. by using words as "a verbal portrait of an individual" (Stoller, 1970, p. 11) in order to avoid examining their own behaviour critically.

The result that externally mediated self-confrontation via CCTV/VR has not influenced the perception and evaluation of the student teachers probably depends on the student teachers being faced with an entirely new form of self-diagnosis and self-evaluation. It is impossible for them to process all the information (different perspectives of the personality and the teaching process) mediated by the CCTV/VR technique. Probably several confrontations with the same situations are necessary if the student teachers are to be able to achieve an analysis and diagnosis of their own video-taped lessons. Repeated confrontations with video-taped teaching situations make it possible for the student teachers to observe themselves and the teaching process under different cognitive and emotional conditions.

For this reason the student teachers were shown their own video-taped lessons repeatedly during the experiment. This report presents an analysis of student teachers' reactions to repeated confrontations with their own behaviour during (1) the experiment, (2) follow-up 1 and (3) follow-up 2. The first follow-up took place at the end of the second term at the school of education, i.e. six weeks after the experiment. The second follow-up was at the end of the student teachers' training at the school of education, i.e. during their sixth term.

The purpose of these re-assessments was to study if and to what extent the teacher training had had any effect on the student teachers' perception and evaluation of the micro-lessons video-recorded during the experiment. In order to link this analysis to other analyses made and published earlier and to associate to the theoretical considerations behind the self-confrontation experiment described, it is necessary to repeat certain arguments already presented that are essential to the analysis in question. At the same time the attempt to avoid repeating well-known lines of thought has perhaps led to a need for further information for readers not acquainted with the earlier reports. Detailed information is given in Bierschenk (1972 a and 1972 b). The original design of the experiment mentioned in the report refers to the analysis of variance design presented in Table 1.

Table 1. Analysis of variance design of the experiment

Index	A	U	T	H	I	V
No. of levels	2	2	2	2	24	79
Size of population	2	2	2	2	∞	79

Factor H: Traditional tutoring, in which h_1: tutoring, h_2: no tutoring

Factor T: Externally mediated self-confrontation via CCTV/VR, in which t_1: self-confrontation, t_2: no self-confrontation

Factor U: Micro-lessons (length 15 min.), in which u_1: micro-lesson 1, u_2: micro-lesson 2

Factor V: Assessment and evaluation schedule F III, in which $v_1, \ldots, v_{79}$ statements form the measuring instrument

Factor A: Aspects in the instrument, in which a_1: perception, a_2:evaluation

Factor I: Women student teachers who have completed 12 years schooling, second term at Malmö School of Education

3. EXTERNALLY MEDIATED SELF-CONFRONTATION VIA CLOSED CIRCUIT TELEVISION AND VIDEO-RECORDING: DEFINITIONS OF CONCEPTS

Student teachers meet new laboratory techniques and new media such as micro-lesson techniques, closed-circuit television and video-recording during their training. The introduction of such techniques should be followed up by means of systematic studies. Well-founded knowledge and extensive training are needed for a sophisticated application of the new technology if it is to lead to improved teaching.

Nowadays closed-circuit television and video-recording combined with micro-lesson techniques are widely used throughout the world both in education and in educational and psychological research. Fuller & Manning (1973) and Bierschenk (1974) have made extensive studies of the literature and have independently reached the conclusion that fundamental research into the individual's self-perception is required, since there is at present a lack of theoretical models and systematic knowledge. There is also a lack of research programs for a systematic study of the entire sequence from the individual's identification of incongruence up to the reduction of this incongruity. Using experimental studies under laboratory conditions, it should be possible to study the individual as his own "external observer-commentator". The introduction of micro-lesson techniques, closed-circuit television and video-recording as integrated components in teacher training is namely not in itself sufficient to improve this training. Carefully constructed and well-reasoned training programs must also be developed.

The main aim of the teaching training is to train teachers who can, when the training is completed, function independently and take responsibility for pupils at the level for which they have been trained, i.e. as "fully-fledged" teachers. The student teachers are expected to have assimilated all the necessary knowledge and skills during a three-year training program.

Thus the main purpose must be to develop the student teachers' ability to perceive and evaluate their own effectiveness in realizing their teaching goals. Self-perception and self-evaluation are, however, skills that demand systematic training. Any serious attempt to study self-governing must be closely linked with a study of the validity of the individual's statements about himself. The assumption that highly motivated individuals also achieve reliable and valid self-observations has not been verified empirically, according to Thoresen & Mahoney (1974, p. 35). On the other hand the literature reports research results that show both that self-observation data that was originally unreliable can become reliable and that e.g. pupils in grades 1 and 2 can improve the reliability of their observations considerably when encouraged to make self-observations of their own classroom behaviour. Independent assessors have been used as a criterion.

Assessing the effectiveness of the teacher in realizing his/her teaching goals is, however, a problem that frustrates teachers, teacher trainers and administrators. If over a long period one could give teachers training in self-observation, analysis, diagnosis and synthesis of intra-individual and inter-individual patterns of influence in teaching situations and help them to develop strategies for controlling and governing themselves, their teaching would probably improve considerably. Many educational investigations have been able to demonstrate that the effect of the teaching depends largely on the teacher factor.

Both psychological (mainly clinical-therapeutic) and educational (teacher training) studies have shown that "externally mediated self-confrontation" is a very important factor for changes in behaviour. There is no adequate theoretical base, however, probably owing to the lack of fundamental research results. Both clinical-therapeutic studies and teacher training studies are usually far too strongly focussed on immediate practical application at the expense of stringency and interpretability. If we do not succeed in isolating and identifying criteria for a successful assessment of the teacher's effectiveness (i.e. realization of behaviour plans and strategies), the problem will remain unsolved.

The aids that have hitherto been available for analysis of teaching behaviours have largely been restricted to descriptive direct observations. The quality of the direct observations is dependent on the perceptive skill of the observer(s). In addition they are isolated phenomena, i.e. the assessments have been made on a single occasion. Repeated checks for e.g. statistical analysis have been inaccessible, with the result that it has not been possible to check the observations satisfactorily from the point of view of research method, since each event is irrevocably lost. CCTV/VR has lifted these restrictions. For the first time in the history of teacher training research, the researcher can observe the same situation (event) over and over again practically without limitation. In addition we have the micro-lesson technique, which permits a study of teaching situations under laboratory conditions.

Under the assumption that the individual's self consists of a system of learned experiences, it can be postulated that each individual has a basic image of himself and that this image influences the individual's ability to behave in a particular way in different situations and on different occasions, the individual's behaviour becomes predictable. Experiences from teacher training have shown that students with an apparently vague self-image have great problems in their inter-personal relations with both pupils and teacher trainers.

A study of the literature suggests that the ego of the individual student teacher is deeply involved in determining the extent to which a behaviour should be modified or in what way a behaviour should be changed. The individual's ego consists of many attitudes that are related to the individual's self. When a situation or event requires that these attitudes be expressed, the individual becomes personally involved. The individual's goal conceptions mean that the individual has expectations and that he must believe in the possibility of being able to fulfill these expectations.

The concept 'self' has in the classic discussion primarily been of theoretical and metaphysical interest, while the present discussion is based on empirical arguments. Researchers using the concept 'self' believe that human behaviour cannot be predicted without knowledge of the individual's conscious perceptions of his surroundings and himself, as he sees himself in relation to his environment. Thus the concept 'self' is used to denote the experiences that the individual has had of personal and non-personal objects, which are assumed to form the foundation of the structure of the individual's personality.

Self-exploration and self-evaluation are two fundamental concepts that have been used in the self-confrontation experiment for a study of the student teachers' perception, evaluation and self-improvement. A basic theme for the experiment of varying importance for psychological research and discussion) is Socrates's imperatives, "Know yourself" and "Be true to yourself". Both imply intentions and goal conceptions. But these imperatives also imply the hypothesis that human beings can direct and govern their own behaviour, thoughts, emotions and attitudes.

It can be suggested that the imperative that the individual should know himself must be based on the "concept of confrontation". Confrontation combined with the concept of self means, for example, that an internal image is placed beside an externally mediated image in order to test the agreement. But it can also mean that one's own person is brought together with someone or something. What is interesting from a psychological point of view is the result of this confrontation and how it is integrated into the individual's self-image. Thus, to be aware of oneself self-confrontation is necessary, while for self-change the individual must succeed in integrating confrontation experiences into the existent self-image.

Man's specific ability for symbolic representation and the development of images is facilitated by less detailed projections of reality (including himself), which in its turn makes it easier to translate concrete experiences into principles of behavioural science. An image is developed by the individual as a result of different experiences, upbringing and education. It encompasses facts, evaluations, concepts and concept relations.

Image and intentions are not sufficient, however, for realization of behavioural plans (e.g. a plan for self-improvement in some respect), but strategies and techniques for self-direction and self-government are also necessary. Strategies must be built up and techniques developed and made available. More or less well-developed techniques have long existed and new advanced techniques have been added.

The possibility of using CCTV/VR techniques to preserve information visually and auditively provides the research and the training with new perspectives for the study and exploitation of the individual's self-perception for improved teaching. For the individual the fundamental problem is the development of the skills needed for self-knowledge. These skills should be based on his interaction with other persons and his ability to see himself as others see, hear or experience him. Skill in perception and evaluation is considered the highest form of cognitive behaviour (Guilford, 1959, pp. 469-479). The search for suitable ways of developing the skill of the teacher in perceiving and evaluating himself and his own teaching must be of primary interest to teacher training research. A good ability for self-perception and a realistic self-evaluation should be the teacher's foremost asset in practical teaching after completion of training.

Despite the fact that the value of self-assessment was pointed out at a very early stage of teacher training research (about 1925), only a few studies have been made of self-assessment by teachers. More recently one such study has been published by Ward (1970). Ward investigated student teachers' self-evaluation when they used different types of questioning techniques in their teaching at basic school level. The psychology literature contains extensive studies of the individual's self-concept (see Bierschenk, 1974).

The self-confrontation experiment (Bierschenk, 1972 a) demonstrated the importance of a systematic study of the individual's image and image-changes. Structure analyses of both student teachers' perception and evaluation and educational experts' perception and evaluation of teaching processes have shown a common structure of perception but no demonstrable common structure of evaluation.

The extent to which a change occurs in the student teachers' perception and evaluation after repeated confrontations with the video-taped material recorded during the experiment will be studied in this report.

4. REACTIONS TO SELF-CONFRONTATION PROCESSES

Research reports on the use of CCTV/VR techniques both in clinical-therapeutic work and in various educational contexts present results that are in complete agreement on two points: firstly, that experimental subjects have an extremely positive attitude towards externally mediated self-confrontation via CCTV/VR and secondly, that the subjects wish for more self-confrontations than has been possible within the frame of the individual investigations (Boone & Goldberg, 1969, pp. 4-8, 45-46). Experience has also shown, however, that there are always a few persons who at first do not like seeing themselves on a TV monitor screen or hearing themselves talk. This attitude usually changes, however, (even in cases of very strong aversion) so that the subjects become increasingly interested in being able to see themselves. The change appears to be reflected in a shift of attention from appearance to effectiveness, i. e. from expressive qualities that can be noted from facial expression or motor behaviour to the effectiveness with which behaviours (tactics, strategies) have been carried out (see Bierschenk, 1972 a, p. 82).

Boone & Goldberg's (1969, p. 18) experiment showed a general trend in the reactions of subjects that indicates that they are inclined to evaluate themselves as being "less good" after the first externally mediated self-confrontation experience than they do after later confrontations (but fluctuations occur).

The great importance of more fundamental psychological questions, such as identification, for the mapping of the variables that influence externally mediated self-confrontation experiences is shown in Salomon & McDonald's (1969, p. 15) study. This indicated that the satisfaction felt by the subject with his own achievement before seeing the recording determines what is observed on a TV monitor screen, the way in which this is evaluated and the change in attitudes to which it leads. Greater attention must be devoted to the ability of an individual to build up a self-image and identify with it. This search for identity (particularly during adolescence and the first years of adult-hood) can cause crises, especially when there is no satisfactory self-image or when there are problems in building one up.

The individual's self-image is based on a number of different experiences, often taking place in dyadic situations, which gradually become structured, generalized and stored in the individual's structures of perception and evaluation (i. e. they form the individual's frame of reference).

However, these structures will not necessarily agree (as has been shown in earlier examples) with other people's reactions to the individual in question, since the way in which a person is perceived and evaluated is largely determined by the functional behaviour. Many of the individual's behaviours are dependent on anticipated effects on others and the perception of others. For many people this sets up a vicious circle, since other people's perceptions and reactions are often relatively stable. Here techniques that mediate self-confrontation externally can initiate an objectivization and diminishing of the incongruency in interaction processes.

Closely related to the question of identity are problems associated with the individual's integrity in relation to influence from groups or authorities. Self-observation and registration of the consequences that are related to a behaviour probably only have a short-term effect on the individual's planning of behavioural strategies. If the individual is to achieve important changes in behaviour, there must be some form of reward (incentives). In this context also it is essential for us to gain a deeper knowledge and understanding of the individual's self-evaluation, since this plays a decisive part in the individual's self-rewarding. How are we, for example, to design our training programmes for individuals who think that they never achieve anything worth a self-reward or who always think of themselves in negative terms ? Studying the individual's subjective interpretation of situations and how the individual can influence and control them is of fundamental importance to a deeper knowledge of the interaction between psychological factors, human behaviour and experience.

The experimental limitations of the self-confrontation study do not permit any externally mediated self-confrontation experiences for the individual subjects in addition to what is stipulated in Figure 1. A further restriction is the relatively large random sample of individuals that factoral investigation designs usually require in order to make a statistical analysis of the collected data meaningful. Another aspect that is also of great interest, however, is to study the individual's skill in giving a correct description of his own behaviour. In this way it would be possible to study the extent to which persons changing their self-evaluation (self-esteem) in reality achieve a more correct description of their behaviour, compared to persons showing no change in self-evaluation. Kline & Grindley (1973, p. 21) found in a study of Cattell's MAT in relation to diary notes that

"The diary events show that with this S the self-concept was bound up with the self-image. Thus, the diary is concerned frequently with successful dieting and its hoped for influence on social relations."

Confrontation by means of CCTV/VR has often led to a more realistic or improved self-perception, which in its turn has influenced the individual's affective reactions to others. Since the great majority of self-confrontation studies in which this technique has been used for repeated confrontations with one's own video-recorded behaviour have concerned persons undergoing psychotherapeutic treatment, a very important research task that should be tackled is to study the effect of externally mediated self-confrontation via CCTV/VR on people's re-analyses of their own behaviour in situations other than psychotherapeutic treatment.

The research literature available states only that the recordings have been viewed several times, but the number of times is seldom stated sufficiently clearly. When there have been repeated viewings, however, it appears without exception to be a question of viewing quite separate, different situations. There are naturally limits to the number of situations that can be included in an investigation and to the number of repeated viewings.

When planning the self-confrontation experiment, it was necessary to choose between (1) several different micro-lessons and (2) several viewings of the same micro-lesson. For the reasons that have been given already, the second alternative was chosen. In addition research into the individual's self-image has shown that many "normal" persons with low self-estimation have difficulty in achieving effective communication. Another important problem that should be studied more closely is whether and to what extent the self-evaluation of student teachers influences their positive or negative evaluation of pupil behaviour, e. g. in the form of positive or negative reinforcement. Roberts (1972, p. 22) suggests that there is every reason to assume that the relation between the individual's self-image and self-evaluation is more than an artificial relation. The fact that so called "normal" individuals with low self-evaluation have difficulty in establishing effective communication implies that the relation between self-image and self-evaluation requires careful and systematic investigation. The results from the experiment (1968) also showed that on this occasion all the student teachers wished to see themselves in the same micro-lesson over and over again. The number of times varied between 3 and 9.

In order to make it possible for the student teachers to assess their performance and actions in a teaching situation, the experiment was designed so that each student was given the opportunity of holding two micro-lessons of 15 minutes each and of then viewing each micro-lesson three times, the first time immediately after the lesson, the second time the following day and the third time one week later. These intervals were decided on the basis of the subjects' comments and reactions to self-confrontation experiences. The six viewing occasions during the actual experiment permit a study of whether and to what extent the usual way of interpreting one's own behaviour becomes de-automated. The result should be a focussing of those processes for which the individual's attention was no longer required, since the function had become automated. If we were able to find the points in the course of the self-confrontation process at which de-automatization occurs, we would also be able to recommend the numbers of repeated viewings of the same micro-lesson, which the student teachers should be given when studying their own teaching behaviour.

5. SELF-EXPLORATION AND SELF-EVALUATION

To enable us to discover changes in the individual's perception and development of image, together with the ability to translate confrontation experiences into behaviour, we need diagnostic tests that can form the foundation for self-change. Structured information (knowledge) is moreover not created in isolation, but is a function of psychological and social systems. Knowledge increases through the transference of information that is meaningful to the receiver, i.e. messages that are suitable for initiating a re-structuring of existing knowledge structures or image. The development of and training in self-governing strategies presupposes a study of image-formation. Thoresen & Mahoney (1974, p. 120) write:

> "When perceived contingencies are not readily corrected by reality testing they may continue to influence behavior for long periods of time."

An individual who has, for example, noticeably improved his positive self-image should demonstrate a changed interaction behaviour, since positive self-evaluation co-variates with positive evaluation of others. However, a study of this relation is made more difficult by the fact that verbal self-evaluation can be independent of the individual's behaviour at the time.

Image-formation naturally always is and always will be of an idiosyncratic nature. A lot of information "flows through" an individual, thus losing structure and effect. On the other hand, it occurs that apparently insignificant information is "trapped" and integrated into the individual's image insofar as it agrees with some internal criterion. When this happens, something essential has occurred which can have far-reaching consequences for the individual's behaviour. Behavioural changes can be observed, even though the actual event (stimulus in a behaviouristic sense) was nothing remarkable. Psychological research, above all its psycholinguistic branch, has long been attempting to shed light on the psychological processes that are created by verbal behaviour. This problem is central to every attempt to study the specific human ability to gather data and re-form them into information, which is then transferred into symbols. In this process the individual's perception (selection of data) and processing (symbolic representation) of information must be of quite special importance, particularly since human awareness is based on linguistic symbols and if one wishes to accept the idea that an individual identifies what he hears and sees by comparing it with some inner picture or conception (see Miller, Galanter & Pribram, 1970, p. 65).

So that we might study the extent to which repeated confrontations with their own video-recorded micro-lessons influence the student teachers' reactions, the students were asked firstly, to make simultaneous and spontaneous oral comments during each confrontation experience and secondly, to mark their reactions on the assessment and evaluation schedule F III and on a schedule called F II for assessing the student teachers′ identification experiences and self-evaluation. The processing of the oral comments is described in Bierschenk (1972 b). For a discussion of the model used in constructing the instruments (F III, F II) and a description of the instruments, see Bierschenk (1972 a, Chap. 8).

As was suggested initially, the influence from groups and authorities is closely related to the question of identity. Identification and self-evaluation depend partly on the individual′s role behaviour. In one sense the student teachers′ behaviour in teaching situations is role behaviour and their self-evaluation can be influenced by improved role behaviours. Thus, it is important to be able to identify the effectiveness of different role behaviours in teaching situations. One fundamental factor in the student teachers′ role behaviours is "identification", i.e. the individual′s ability to identify himself with the role he is playing.

In the analysis of results given below, an account is first given of the analysis of student teachers′ assessments using the F III schedule, which contains six different a priori defined subject-object relations (see Chap. 1). This is followed by an account of the analysis of student assessments on the F II schedule, which contains 11 statements defining a priori an identification factor and a self-evaluation factor. The two factors have been confirmed by means of factor analytical computation (see App. 2).

ANALYSIS 1. REPEATED CONFRONTATIONS DURING AN EXPERIMENT

6. ASSESSMENT AND EVALUATION SCHEDULE F III: AN ANALYSIS OF LEVELS IN STUDENT TEACHERS' ASSESSMENTS

6.1 Design of analysis of variance

The design of the self-confrontation experiment is fully combined and completely balanced. Since, however, only (1) the student teachers who were given externally mediated self-confrontation via CCTV/VR and (2) the student teachers who were given externally mediated self-confrontation and traditional tutoring were confronted repeatedly with a single microlesson (see Fig. 1), the original design (Tab. 1) was changed as is shown in Table 2.

Table 2. Analysis of variance design of the repeated measurements of student teachers' self-confrontation within the experiment

Index	G	U	A	R	I	V
No. of levels	2	2	2	3	24	79
Size of population	2	2	2	3	∞	79

As shown in Table 2, two new factors appear, Factor G with two levels in which

g_1: externally mediated self-confrontation via CCTV/VR

g_2: externally mediated self-confrontation via CCTV/VR and traditional tutoring

and Factor R, which represents repeated viewings of the respective microlessons in which

r_1: viewing approx. 10 min. after lesson

r_2: viewing 1 day after lesson

r_3: viewing 7 days after lesson

Apart from the precision factor V, this design consists of a 2 x 2 x 2 x 2 factorial experiment with repeated measurement in the last three factors. Each student teacher participating in the experiment has been observed under all the UAR combinations, but only under one separate level in Factor G. For a more detailed description of the design and the distribution of middle cell variations and construction of F quotients, see Winer (1971, Chap. 7.3).

All main effects and interaction effects will be tested, but not all are equally essential. The main effects in Factor R and all the interaction effects that contain this factor are of particular interest in this context.

Compared with a simple factorial design (2^2), the expansion of the design by one or several extra factors produces the disadvantage that the design becomes more complex. The difficulties that arise, at least from the interpretation point of view, in connection with larger analysis of variance (ANOVA) models need not be considered a disadvantage, however. In addition, the ANOVA model provides more information when the number of factors increases (e. g. the expansion of the model above by the factors A and V).

The results of factorial experiments sometimes seem difficult to interpret, since one is faced with a confusing mass of possible comparisons of factor combinations. But such a situation probably arises primarily when analysis of variance methods are applied mechanically, i. e. when an analysis and a summary of investigation results are based solely on the first stage in an ANOVA, i. e. on the F tests. If, however, the factors, despite careful examination, should prove to co-variate in a puzzling way, new experiments will be necessary before results that can be meaningfully interpreted can be presented.

It can be difficult to define what information is of substantial value. In this report the same analysis and reporting system is used as in the earlier analyses (see Bierschenk, 1972 a), i. e. the results are analyzed in three stages

1. interpretation of the pattern in the F tests
2. examination of the precision and power in the F tests
3. post-testing

6.2 The pattern in the F tests

A separate analysis of variance was carried out for each variable domains. Table 3 presents the results for all six variable domains. The purpose of this examination of the F quotients is to describe interpretable patterns. In the evaluation $\alpha = .01$ is applied throughout, as in the analyses published earlier. For the benefit of readers desiring a more liberal limit, $\alpha = .05$ is also indicated.

The discussion of the effects shown in Table 3 will centre mainly on those relating to Factor R and all the combinations of factors containing Factor R. Factors A, U and V have already been described (see Bierschenk, 1972 a, p. 138).

Within variable domain 1, i. e. ego-ego relation, there are effects in Factor R and in the interaction of UR and AR. The effect in R indicates

Table 3. The student teachers' self-assessment during repeated confrontations with their own behaviour during the same micro-lesson: 10 min., 1 day and 7 days after teaching

Source	Variable domain 1	2	3	4	5	6
G					*	
U	**	**	*			
GU						
R	*			*		
GR						
A	**	*	**	**	**	**
AG						
UR	*					
GUR						
AU	*		**			
AGU						
AR	*		**		*	
AGR					*	
AUR			*			
AGUR						
V		**	**	**	*	**
GV						
UV		*	*		*	
GUV						
RV						
GRV						
AV	**	**	**	**	**	**
AGV						
URV						
GURV						
AUV			**			
AGUV						
ARV					*	
AGRV						
AURV						
AGURV						

G: Group (group 1: externally mediated self-confrontation via CCTV/VR, group 2: externally mediated self-confrontation via CCTV/VR plus traditional tutoring)
U: Micro-lesson (1, 2)
R: Viewing occasion (1, 2, 3)
A: Aspect (perception, evaluation)
V: Assessment and evaluation schedule F III
**: $F_{.99}(1.46) = 7.31$, $F_{.99}(2,92) = 4.88$
*: $F_{.95}(1.46) = 4.08$, $F_{.95}(2,92) = 3.11$

that the student teachers have been influenced in their perception or in their evaluation as a result of repeated confrontations with their own behaviour during a video-recorded micro-lesson. The UR interaction suggests that there are differences in the student teachers' reactions to micro-lesson 1 and micro-lesson 2 respectively after repeated confrontations. The effect in the AR interaction indicates that the perception and evaluation of the student teachers are influenced in different ways by repeated confrontations.

Within variable domain 2, i. e. the ego-pupil relation, the repeated confrontation does not appear to have had any effect. Thus, it can be established that repeated confrontations do not influence the student teachers' perception or evaluation of the ego-pupil relation.

Within variable domain 3, i. e. the ego-NPO relation, the AR interaction and the AUR interaction have led to significant effects. In this variable domain it can be established that the student teachers' assessments are influenced by repeated confrontations. The perception and evaluation can be affected in different ways. But the micro-lessons also contribute to different assessments after repeated viewing.

Within variable domain 4, i. e. the pupil-ego relation, there is only one overall effect. Factor R indicates that repeated confrontations influence student teachers' assessments of the pupil-ego relation.

Within variable domain 5, i. e. the pupil-pupil relation, the G factor has caused a significant effect, which means that the student teachers who were only given externally mediated self-confrontation via CCTV/VR differ in their assessments from the student teachers who were given self-confrontation via CCTV/VR and traditional tutoring. The significant effects in the AR and AGR interactions indicate that repeated confrontations influence student teachers' perception and evaluation in different ways and that the group to which the student teachers belong is of significance, since neither Factor F nor the AR interaction sufficiently explain the variance.

The pattern in the F tests shows that student teachers' perception and evaluation are influenced by repeated confrontations with the micro-lessons recorded during the experiment. Effects can be shown with variable domains 1, 3, 4 and 5. On the other hand, repeated confrontations appear to be without significance for student teachers' perception and evaluation of the ego-pupil relation and the pupil-NPO relation.

The effects that can be traced to Factors U, A and V and to the interaction of these factors form a pattern that in all essentials agrees with the pattern in the analyses reported earlier (for a description and discussion, see Bierschenk, 1972 a, p. 140).

6.3 Precision and power in the F tests

The examination of the F tests showed that repeated confrontations with the video-recorded micro-lessons have influenced the student teachers' perception or evaluation within four of the six subject-object relations. In addition there is a significant effect within the G factor. In the previous analyses, on the other hand, there was no effect in Factor T. But in order to avoid having relatively small and uncertain results as a basis for the interpretation of results, the size and power of the effects in the F tests have been examined. This examination has been guided by the same criteria as the evaluation of the self-confrontation experiment (see Bierschenk, 1972 a, p. 114). To assess the proportion of variance (PV) Hays' $\hat{\omega}^2$ index was calculated for the significant F tests reported in Table 2 (see Hays, 1970, p. 407). The $\hat{\omega}^2$ values are given in Appendix 1. To obtain a measure of the size of any one effect (ES), Cohen's f (see Cohen, 1969, p. 278) was also calculated. Using this index we have then decided the probability (g) of an effect of a certain size being demonstrable on the chosen power level. By means of Cohen's f and the tabulated probability values, it becomes possible to give acceptance of the null hypothesis a positive content. Power assessments are used to assess the risk of Type II errors (1-g). If g is placed around .70 the interpretation of ES will be meaningful. The size of the effects according to Cohen's f and probability assessments are presented in Table 4.

Table 4 shows that only one (the AR interaction within the ego-NPO relation) of the seven effects in the factors and factor combinations that are important to this analysis has fulfilled both the criterion of significance $F(2, 92) = 4,88$ and $g > .70$. These requirements must be fulfilled if contrast analyses are to be meaningful.

Thus in summing up it can be established that the effect within the AR interaction appears to be relatively isolated. The result of the phased analysis is that repeated confrontations with the experiment's video-recorded micro-lessons 5-10 minutes, 1 day and 7 days after the recording have, with one exception, not noticeably influenced student teachers' assessments and evaluations, as reflected in the assessment and evaluation schedule F III.

Table 4. Size of effect and power of the student teachers' assessment and evaluation in repeated confrontations

Source	Variable domain					
	1	2	3	4	5	6
1. Size of effect (f)						
G					(.09)	
U	.18	.16	(.11)			
GU						
R	(.08)			(.09)		
GR						
A	.19	(.09)	.48	.60	.27	.17
AG						
UR	(.16)					
GUR						
AU	(.14)		.23			
AGU						
AR	(.15)		.24		(.16)	
AGR					(.17)	
AUR			(.22)			
AGUR						
2. Power (g)						
G					(.60)	
U	.94	.89	(.53)			
GU						
R	(.43)			(.49)		
GR						
A	.97	(.44)	>.99	>.99	>.99	.92
AG						
UR	(.67)					
GUR						
AU	(.72)		.88			
AGU						
AR	(.62)		.87		(.67)	
AGR					(.72)	
AUR			(.65)			
AGUR						

G: Group
U: Micro-lesson (1, 2)
R: Viewing occasion (1, 2, 3)
A: Aspect (perception, evaluation)
( ): Indicate $F_{.95}(1.46) = 4.08$, $F_{.95}(2.92) = 3.11$

6.4 Summary of student teachers' assessment and evaluation using the F III schedule

In the evaluation of the student teachers' perception and evaluation of micro-lessons with repeated viewings, the statistical tests show that there are significant effects that can be used as a conclusive basis for interpretation. There can naturally be many reasons for such a result (acceptance of H_0) and this makes it difficult to make any definite pronouncement about them.

One rather obvious explanation is that the duration of the experiment has been too short. Considering that there must first be a de-automatization of the usual way of regarding oneself and then a re-direction of attention, it is not surprising if student teachers have not yet succeeded in preparing themselves for receiving and processing first-hand information, i.e. non-verbally mediated "self"-information.

But externally mediated self-confrontation via CCTV/VR and traditional tutoring has not led to any demonstrable effect that can be considered a definite basis for interpretation either. In contrast to these results stand the effects that have been demonstrated when video-recorded self-confrontation has been combined with some form of therapeutic treatment. On the basis of such results the conclusion should be that tutoring without a theoretically anchored, detailed and carefully worked out schedule has not succeeded in influencing the student teachers appreciably. What can be achieved with theoretically anchored influencing schedules is demonstrated very convincingly by Hamblin, Buckholdt, Bushell, Ellis & Ferritor (1970, pp. 280-290) in their article, Changing the game from "get the teacher" to "learn".

From the point of view of behavioural science, the self-confrontation process has a key function in that perception and evaluation, regardless of whether non-visible or visible behaviours are concerned, are the foundation stones. By self-perception is meant the individual's systematic gathering of information about his own behaviour (intrapersonally or interpersonally) by means of detailed observations. The fact that we have been unable to demonstrate self-confrontation effects in this study may depend on a lack of systematic training in self-observation in the subjects. It is of fundamental importance for every form of training and education that the individual should learn to predict the consequences of a chosen behaviour. This means that there must be successful feedback of information about the effects of a behaviour, otherwise it will be impossible for the individual to build up behavioural strategies. But what appears to be needed above all is knowledge of how we can develop the skill of the individual in perceiving and evaluating his own effectiveness in realizing the intentions formed in behavioural plans and strategies.

The fact that the repeated confrontations have not led to effects that fulfil the criteria for a definite basis for interpretation can be interpreted in two ways. The relatively unchanged cell median values in Factor R imply that the student teachers' renewed assessments of the micro-lessons have not produced a different result and this could stem from an initial good self-assessment. Boone & Goldberg's (1969, p. 30) experiment shows that persons with a negative self-assessment (low self-esteem) are influenced to a greater extent by self-confrontations mediated via video-recordings than persons with a positive self-assessment.

The other explanation of this result could be that the student teachers' knowledge and experience in judging themselves and the teaching process are such that they cannot achieve more detailed analyses that lead to changes in perception and evaluation within the time-limits of the experiment.

One step towards systematic training that could be worth trying would be letting the student teachers analyze their own video-recorded micro-lesson from the aspect of the ego-ego relation at the first viewing, re-analyze their own behaviour from the aspect of the ego-pupil relation at the second viewing of micro-lesson 1, ... , re-analyze micro-lesson 1 from the aspect of the pupil-NPO relation at the sixth viewing.

7. THE IDENTIFICATION AND SELF-EVALUATION SCHEDULE F II: AN ANALYSIS OF LEVELS IN STUDENT TEACHERS' ASSESSMENTS DURING AN EXPERIMENT

7.1 Some initial comments

Concepts such as "paying attention to", "having insight into" or "being aware of" are fundamental within every psychotherapeutic system. Researchers making use of the concept of "self" in this context work on the hypothesis that human behaviour cannot be predicted without knowledge of the individual's conscious perceptions of his environment and of how the individual sees himself in relation to his environment. Part of the individual's perceptual field is differentiated in such a way that he can experience himself as a distinct individual. Thus each person has the ability to shape a "self-image". As a consequence of this self-image, the individual participating in an interaction process with one or more other persons puts himself in the position of the others, thus achieving a distance to himself and testing whether his intended or planned actions are adequate.

Confrontations via video-tapes with his own, often unconscious way of behaving and acting in different situations affect the individual's personality in a very special way. The CCTV/VR technique permits an external perception and evaluation of his own person's behaviours. Thus the student teachers exposed to this confrontation technique become their own "external observers and commentators". This role entails a distinct demarcation in time and space from the situations with which the student teachers are faced. External self-differentiation consists of a new form of self-diagnosis and self-evaluation compared to e.g. Cooley's (1968, pp. 87-91) "looking-glass-me".

Confrontation with oneself is a perceptual experience that has a special fascination for human beings, occupying a central position in their myths and imagination. Cooley's "looking-glass-me" concerns an internal self-observation and should be a necessary prerequisite for self-diagnosis and self-insight. Social-psychological studies have established relations between the individual's self-acceptance and acceptance of other people or groups of people. Such results could imply that persons who do not accept or find it difficult to accept themselves have a hostile attitude towards other people.

In studies using "externally mediated self-confrontation", it has been reported that the subjects become deeply involved in this type of self-confrontation. Allen & Ryan (1969, p. 55) observed a general lack of confidence in their subjects concerning the first teaching performance and recommend that during this first critical period the subjects should be given so much time and so many viewings that they can achieve congruency between internal and external conceptions before any more systematic influence via e. g. a tutor is initiated. The writers say nothing, however, about when this period of insecurity can be expected to be over or how many times a single student teacher should see his lesson(s).

Steiner (1963, pp. 128-136) pointed out that the individual's main motivation for selecting new information about his own behaviour is not the effort to achieve cognitive balance but a desire to increase or retain the self-evaluation (self-esteem).

Nielsen (1962, pp. 167-168) reports extreme emotionality and "rejection" together with avoidance of the information that the individual received by seeing himself on film.

Boone & Goldberg (1969, p. 23) observed that subjects with low self-evaluation more often make use of negative reinforcement than subjects with high self-evaluation. In addition the investigation showed that subjects' positive reinforcement technique(s) were more stable and resistant to changes than negative reinforcement techniques. The main result of Boone & Goldberg's experiment was that subjects with high self-evaluation did not change their self-perception as a result of externally mediated self-confrontation via CCTV/VR during the self-confrontation sequences of the experiment.

The F II schedule was constructed for the purpose of investigating how the student teachers (a) identify with their own person in connection with externally mediated self-confrontation processes and (b) evaluate themselves as a result of the visual and aural information mediated via the CCTV/VR technique. This instrument also contains one question (12) which asks the student teachers whether they prefer to see the recording of video-recorded micro-lessons alone or together with someone else. The student teachers were asked to rank nine possible forms that provide information as to how the viewing sessions should be designed in order to permit the students to achieve self-direction and self-government without any disturbing factors.

One of the hypotheses set up in connection with the self-confrontation experiment was namely that the individual's ability to take a more objective view increases at the same rate as his ability to achieve self-distance. It is conceivable that tutoring should not be introduced until a later phase of this development (see Bierschenk, 1972 a, p. 83).

Schedule F II was administered during the self-confrontation experiment only to (1) the student teachers who were given the influence of externally mediated self-confrontation via CCTV/VR and (2) the student teachers given externally mediated self-confrontation via CCTV/VR and traditional tutoring. In order that we might study whether repeated confrontations with a micro-lesson has any effect on the student teachers' identification experience or self-evaluation, the student teachers were asked to answer schedule F II after each separate confrontation session. Thus, the design of the analysis of variance is the same as the one presented in Table 2, apart from Factors A and V.

The question: To what extent is the student teachers' identification experience or self-evaluation influenced by repeated confrontations with the video-recorded lessons in the experiment? was formulated thus:

The null hypothesis, i. e. (1) group affiliation gives no effect, (2) micro-lessons give no effect, (3) repeated confrontations give no effect and (4) no interaction occurs.

7. 2 The pattern in the F tests

A separate ANOVA was carried out for each statement in schedule F II. Table 5 summarizes the effects that have been significant in the separate ANOVA. The statements are grouped according to the results of the factor analysis. Those that are not considered to belong to Factor I or Factor II are placed on the right of the table under the heading "Separate".

Table 5. Summary of significant F tests for student teachers' identification experience and self-evaluation

Source	Identification experience			Self-evaluation				Separate			
	Statement 3	6	10	1	2	4	7	5	8	9	11
G										*	
U	**	**	*	*		*			**		
GU											
R				**		**	**	*		**	**
GR							**				
RU	**	**									
GRU											

G: Group
U: Micro-lesson (1, 2)
R: Viewing occasion (1, 2, 3)
**: $F_{.99}(1.46) = 7.31$, $F_{.99}(2.92) = 4.88$
*: $F_{.95}(1.46) = 4.08$, $F_{.95}(2.92) = 3.11$

7. 2. 1 Variable domain: Identification experience

Factor U has led to significant effects in all statements defining this variable domain. As the RU interaction indicates the influence on the student teachers' identification experience appears to depend on which micro-lesson they are confronted with repeatedly, since in two cases (3, 6) Factor U does not sufficiently explain the variance.

7.2.2 Variable domain: Self-evaluation

As can be seen from Table 5, Factor U influences the student teachers' self-evaluation in two cases (1, 4). But repeated confrontations, irrespective of the lesson concerned, also influence their self-evaluation. Finally, the effect in the GR interaction suggests that group affiliation and repeated confrontations influence the student teachers' self-evaluation with regard to variable 7.

7.2.3 Separate statements

Factor G has led to a main effect in variable 9, which had the following wording:
I consider the viewing to be for my teacher training
(1) completely meaningless
(7) very instructive
The effect in this statement indicates that student teachers are influenced differently, depending on which group they belong to. But the significant effect in Factor R also suggests that the student teachers' feelings about how instructive the viewings have been vary as a result of repeated confrontations.

Factor U has led to a significant effect in statement 8, which was worded:
During this viewing my attention was caught by single details
(1) very often
(7) very seldom
This effect implies that the student teachers' attention to details varies depending on which micro-lesson it is.

Finally repeated confrontations (Factor R) have influenced the student teachers' experiences with regard to statements 5 and 11, which were worded:
5. When I see myself during the viewing, I concentrate my attention
(1) wholly on the details
(7) wholly on the overall impression

11. During this viewing my opinion of my lesson is
(1) completely changed
(7) completely unchanged
Within the variable domain described as identification experience, the pattern in the F tests shows that above all Factor U and the RU interaction influence the student teachers' reactions.

In the variable domain described as self-evaluation, the pattern in the F tests shows that above all Factor R and the GR interaction have led to variations. In this connection Factor U does not appear to be so important for the student teachers' identification experience.

To sum up the pattern in the F tests shows that the student teachers' group affiliation appears to be of less importance. On the other hand the student teachers' identification experience and self-evaluation depend on which micro-lesson is concerned and on repeated confrontations, or on the interaction between the two factors.

7. 3 Precision and power in the F tests

Most of the effects presented in Table 5 fulfil the criterion for significance (α .01). Step 2 in the analysis of results was carried out for the purpose of estimating the size and power of the effects in the F tests. As before both Hays' $\hat{\omega}^2$ and Cohen's f were calculated. While $\hat{\omega}^2$ can be seen from Appendix 2, Cohen's f and the power in the significant F tests are presented in Table 6. On the basis of the power estimates it is then decided which of the effects should be subjected to post-testing.

If an effect is to be examined more closely, it should fulfil the criteria $\alpha = .01$ and $g > .70$. As can be seen from Table 6, there are two effects within the identification experience variable domain that refer to statements 3 and 6, respectively.

When during the viewings the student teachers see themselves (statement 3) they have, depending on which micro-lesson it is, varying degrees of difficulty in recognizing themselves. This identification experience is in addition influenced by the number of viewings.

The effects that refer to statement 6 imply that both micro-lessons and repeated confrontations influence the student teachers' identification with their performance, i.e. if they experience themselves completely differently to what they had expected or exactly as they had expected.

Within the self-evaluation variable domain statement 4 shows an interpretable effect. This statement concerns the student teachers' estimation of the extent to which they were satisfied or dissatisfied with themselves. Statement 7 has resulted in two interpretable effects, which means that the student teachers find varying degrees of pleasure in seeing themselves on the TV screen, depending on which group they belong to and the number of repeated confrontations.

"Separate statements" shows an effect in statement 8. This effect says that the student teachers' attention is caught by single details to a varying

Table 6. Size of effect and power of student teachers' identification experience and self-evaluation

Source	Identification experience Statement 3	6	10	Self-evaluation 1	2	4	7	Separate 5	8	9	11
1. Size of effect (f)											
G										(.18)	
U	.25	.36	(.16)	.18		(.15)			.48		.23
GU											
R						.33	.24	(.17)		.42	.17
GR							.47				
RU	.40	.44									
GRU											
2. Power (g)											
G										(.84)	
U	.95	>.99	(.76)	(.84)		(.72)			>.99		.99
GU											
R						>.99	.97	(.86)		>.99	.82
GR							>.99				
RU	>.99	>.99									
GRU											

G: Group
U: Micro-lesson (1, 2)
R: Viewing occasion (1, 2, 3)
( ): $F_{.95}(1.46) = 4.08$, $F_{.95}(2.92) = 3.11$

extent in the different micro-lessons. The repetition has no effect. In statement 9 on the other hand there is an effect referring to repeated confrontations, i. e. the extent to which the student teachers find the confrontations completely meaningless or very instructive in their teacher training. Finally there is in statement 11 both an effect referring to micro-lessons and an effect caused by repeated confrontations. Statement 11 concerns the student teachers' estimation of the extent to which they have changed their opinions on the lesson.

7. 4 Post-testing

7. 4. 1 Variable domain: Identification experience

When viewing micro-lesson 1 the student teachers obviously find it much more difficult to recognize themselves than they do when viewing micro-lesson 2. The cell means in Factor U are for $u_1 = 4.44$ and for $u_2 = 4.79$. This result means that when viewing the first lesson the student teachers find it neither easy nor difficult to recognize themselves. In micro-lesson 2 it is much easier. This may show that they find it easier to accept their own teaching performance in lesson 2. The way in which this process of recognition develops can be studied in more detail since the RU interaction also permits post-testing. The cell means (m) for the RU interaction are presented in Table 7.

Table 7. Contrast analysis RU, statement 3

Order	1	2	3	4	5	6
Source	r_1u_1	r_3u_1	r_3u_2	r_2u_1	r_2u_2	r_1u_2
m	4.21	4.29	4.54	4.81	4.81	5.00
r_1u_1		.08	.33	.60**	.60**	.79**
r_3u_1			.25	.52**	.52**	.71**
r_3u_2				.27	.27	.46
r_2u_1					.00	.19
r_2u_2						.19
r_1u_2						

Scheffé's test
Critical value .47

As can be seen from Table 7 the recognition develops differently during the two micro-lessons. In the viewing of micro-lesson 1, the student teachers find it most difficult in the first viewing. In the second viewing of the first lesson the recognition is clearly easier but becomes again significantly worse in the third viewing. The recognition has been easiest in the first viewing of the second lesson, but becomes worse again in the second and third viewings. One week's interval between the second and third viewings has had an obvious effect. It emerges clearly that confrontations with the same lesson significantly influence the student teachers. It is obvious that repeated confrontations are needed for a de-automatation process to come about.

The extent to which the student teachers consider during the viewing that they behave exactly as they had expected or exactly the opposite to what they had expected (statement 6) will be examined below. The cell means in Factor U are for u_1 = 4.47 and for u_2 = 4.91. The result implies that the experience of one's own video-recorded performance in the first lesson lies between the two extreme poles. In lesson 2 the experience has changed and the surprise effect is smaller, i.e. the student teachers find their performance more as they had expected.

The way in which the repeated confrontations have affected the identification experience can be studied in more detail by means of a contrast analysis of the RU interaction. The cell means (m) for the RU interaction are given in Table 8.

Table 8. Contrast analysis RU, statement 6

Order	1	2	3	4	5	6
Source	r_1u_1	r_2u_1	r_3u_1	r_3u_2	r_2u_2	r_1u_2
m	4.35	4.52	4.52	4.65	4.85	5.23
r_1u_1		.17	.17	.30	.50**	.88**
r_2u_1			.00	.13	.33	.71**
r_3u_1				.13	.33	.71**
r_3u_2					.20	.58**
r_2u_2						.38
r_1u_2						

Scheffé's test
Critical value .43

Table 8 shows how the repeated confrontations have influenced the student teachers' expectations in approximately the same way as they did the recognition. In the first lesson, however, the development of the profile is such that the expectations in the second and third viewings are similar. For lesson 2 the student teachers find their performance as expected in the first viewing but again more unexpected in the second and third viewings. This result clearly implies that the student teachers' advance attitude steers the perception during the viewing. Thus, the result supports Salomon & McDonald's (1969, p. 15) conclusion that the expectations of the student teachers governs what is observed on the TV screen. But this steering is broken by having several viewings of the same lesson. Moreover, an interval of one or two weeks between the viewings appears to ease the process of self-confrontation, in that the de-automatization process is reinforced, i.e. a redirection of attention takes place in the processes for which it has no longer been necessary, since the functions had become automatic. Thus, temporarily at least, a disorganization of the functions appears to have come about, which is a prerequisite if new functions are to be built up.

Externally mediated self-confrontation via CCTV/VR produces a situation in which the de-automatization process has probably arisen as a result of a lack of balance between the actual behaviour of the student teachers and their automated self-image. The fact that this process does not occur until the sixth viewing is a result that deviates from the observations described in the research literature. As was shown in the results described initially, the student teachers have namely become increasingly positive to their own video-recorded self-images. These results probably depend on a combination of identification experiences and the evaluation of the teaching process.

To sum up, it is not until the sixth viewing that the repeated confrontations force the student teachers to accept an image that they have learnt not to see. Thus, the first repeated externally mediated self-confrontation process appears to temporarily de-automate the student teachers' way of seeing themselves and stimulate them to remember and expand the areas of association concerning their identification, so that they can again create a balance between the self-image mediated via the monitor and their existing self-conception.

Finally, it should be pointed out that the student teachers have discovered without the aid of the tutor actual new behaviours that are not in agreement with their existing self-conception.

7.4.2 Variable domain: Self-evaluation

As can be seen from Table 6 there is within the self-evaluation variable domain one effect (Factor R) that refers to statement 4 and two effects (Factor R and the GR interaction) that refer to statement 7, which is to be examined by means of contrast analyses.

Statement 4 is intended to measure the extent to which student teachers are in repeated confrontations completely dissatisfied or completely satisfied when they see themselves. The cell means in Factor R are presented in Table 9.

Table 9. Contrast analysis R, statement 4

Order		1	2	3
Source		r_3	r_2	r_1
m		2.99	3.47	3.81
	r_3		.48**	.82**
	r_2			.34**
	r_1			
Scheffé's test Critical value .33				

Table 9 shows how the student teachers' evaluation of themselves changes significantly through repeated confrontations irrespective of the lesson concerned. The student teachers are least satisfied with themselves at the third viewing. Even if they indicate at the first viewing that they are neither satisfied nor dissatisfied, the results shown in Table 9 do not in any case verify Dieker, Crane & Brown's (1968, p. 5) statement:

"... the first self-confrontation is usually a shocking experience and most students need to become accustomed to viewing themselves."

We can however agree with the comment

"... that several self-viewing experiences are necessary to maximize the impact of self-confrontation ..."

though with the addition: of the same situation. Nor does this result confirm Boone & Goldberg's (1969, p. 18) statement that subjects appear to be inclined to evaluate themselves as being "less good" after the first externally mediated self-confrontation experience than they do at later confrontations. But the conclusion drawn by these writers can very well be a result of each confrontation involving a new situation, which would agree with the effect in Factor U.

Statement 7 is intended to measure the extent to which the student teachers find viewing themselves on the TV screen very unpleasant or very pleasant.

The way in which repeated viewings of video-recorded material influence the student teachers' experience of themselves can be seen from Table 10. The table presents the cell means in Factor R.

Table 10. Contrast analysis R, statement 7

Order		1	2	3
Source		r_3	r_2	r_1
m		3.73	3.73	4.14
	r_3		.00	.41**
	r_2			.41**
	r_1			
Scheffé's test Critical value .26				

As can be seen from Table 10, the student teachers find the first viewing occasion significantly more pleasant than the second and third viewings of the video-recorded material used in the experiment. As far as the student teachers' experiences of viewing themselves are concerned, the result is the opposite of what is reported by e.g. Nielsen (1962), Boone & Goldberg (1969) and others. Repeated confrontations with the same micro-lesson lead to a clear revaluation of the first impression. In this case the self-confrontation experience becomes more unpleasant on the second and third occasions.

An analysis of the GR interaction makes it also possible to examine more closely how important the experimental influence of externally mediated self-confrontation via CCTV/VR (g_1) and externally mediated self-confrontation via CCTV/VR and traditional tutoring (g_2) respectively have been for the student teachers' experience of viewing themselves repeatedly on the TV screen. The cell means in the GR interaction are presented in Table 11.

Table 11 shows that the reactions of the student teachers who were only given the influence of externally mediated self-confrontation via CCTV/VR (g_1) differed significantly at viewings 2 and 3 from their own reactions at viewing 1 and from those of the group that had also had tutoring (g_2). The result implies that the tutor influenced the student teachers so that they found it more pleasant to see themselves on the TV

Table 11. Contrast analysis GR, statement 11

Order	1	2	3	4	5	6
Source	r_2g_1	r_3g_1	r_3g_2	r_1g_2	r_2g_2	r_1g_1
m	3.42	3.50	3.96	4.02	4.04	4.25
r_2g_1		.08	.54**	.60**	.62**	.83**
r_3g_1			.46**	.52**	.54**	.75**
r_3g_2				.06	.08	.29
r_1g_2					.02	.23
r_2g_2						.21
r_1g_1						

Scheffé's test
Critical value .41

screen. Moreover, the experiences of this group are much more even over the three viewing occasions. Some form of reassurance from the tutor obviously makes it more pleasant (maintenance of self-evaluation) to view oneself on the TV screen than without this reassurance. It is difficult to judge how desirable this effect is, however, since the tutor's reassurance can very well prevent the deeper self-analysis that is the foundation for a reconsideration of the behaviour in question.

Since self-confrontation processes are usually linked with some form of counselling, this analysis also makes it easier to understand the statement that the student teachers' satisfaction with their own performance determines what is observed on a TV monitor and the way in which it is evaluated. If the two processes are kept isolated, however, the pattern changes noticeably. The student teachers become forced to obtain their own diagnoses and syntheses.

7.4.3 Separate statements

Of the "separate statements", i.e. those that cannot be said to belong to the variable domains identification experience or self-evaluation, Factor U and Factor R have led to effects of a satisfactory power in statements 8, 9 and 11.

Statement 8 is intended to measure the extent to which the student teachers' attention is caught by single details. The cell means in Factor U are for $u_1 = 3.37$ and for $u_2 = 4.03$. This effect should be interpreted that student teachers' attention in lesson 1 is relatively often caught by single details while in lesson 2 their attention is less often caught by single details. Strangely, neither tutoring nor the repeated confrontations have been of any importance.

Statement 9 is intended to measure the extent to which student teachers find the confrontations completely meaningless or very instructive in their teacher training. As Factor R indicates the experience appears to be changed by repeated confrontations. The cell means in Factor R are shown in Table 12.

Table 12. Contrast analysis R, statement 9

Order		1	2	3
Source		r_3	r_2	r_1
m		5.18	5.65	6.58
	r_3		.47**	1.40**
	r_2			.41
	r_1			
Scheffé's test Critical value .46				

Table 12 shows how the student teachers find each new confrontation with the experiment's video-recorded material significantly less instructive. It should be pointed out, however, that even the third viewing of the same micro-lesson was felt to be instructive. This result does not in any case verify Boone & Goldberg's (1969, p. 26) assumption that repeated confrontations, which have made the subjects well-acquainted with the self-confrontation process lead to a "boredom effect". The writers' other explanation of subjects' reactions to repeated confrontations (with different situations.) namely that 'anxiety' and emotional tension are less at later viewings than on the first viewing occasion, has not been verified in this analysis. If that had been the case, the student teachers' evaluation should at least have changed in the opposite direction, since less involvement in the situation ought to result in greater distance, which in its turn should lead to a more "positive" evaluation of the importance of the viewings for the teacher training (which has also been shown in the research literature).

The following analysis shows the extent to which the student teachers' opinions of their own lessons have been changed or remained completely unchanged by the confrontations. The cell means in Factor U are for u_1 = 3.96 and u_2 = 4.39. The result means that a demonstrable change took place in the student teachers' opinion of the first lesson. The opinion of the second lesson is neither completely changed nor completely unchanged. A closer examination of the repeated confrontations′ effects on this opinion is made possible since there is an interpretable effect in Factor R. The cell means are presented in Table 13.

Table 13. Contrast analysis R, statement 11

Order	1	2	3
Source	r_3	r_2	r_1
m	3.71	4.30	4.51
r_3		.59	.80**
r_2			.21
r_1			
Scheffé′s test Critical value .74			

As can be seen from Table 13 repeated confrontations with the same lesson are of importance for the student teachers′ opinion of the lesson. At the first and second viewings the opinion of the lesson is neither completely changed nor completely unchanged. At the third viewing, however, there is a significant change in the student teacher′s opinion of the lesson.

7.5 Summary of student teachers′ identification experience and self-evaluation (schedule F II)

One of the problems formulated during the planning stage of the self-confrontation experiment was: How do repeated confrontations with their own video-recorded micro-lessons influence student teachers′ identification experiences and self-evaluation? To measure this influence we constructed schedule F II, whose two a priori defined variable domains have been verified by means of a factor analysis. However, a total of 48 student teachers is too small to give correlations without all too great a mean error. For this reason no summation variables have been formed, but instead an ANOVA has been carried out for each individual statement in schedule F II.

With regard to the student teachers′ identification experiences, it can be said that the repeated confrontations do not produce a de-automatization and re-direction of attention until the sixth viewing. This result implies that externally mediated self-confrontation via CCTV/VR stimulates the student teachers to increased awareness of themselves, which is the fundamental prerequisite for learning on both the cognitive and the emotional level. It must be emphasized that the student teachers have, without the aid of a tutor, discovered new actual behaviours that do not agree with their existing self-perception.

Within the self-evaluation variable domain the analysis has shown that the student teachers' self-evaluation develops differently in repeated confrontations with micro-lessons 1 and 2. Nevertheless it has been established that repeated confrontations with the same lesson are needed. The result implies that between 3 and 6 viewings are required before a de-automatization process can come about. Moreover, these results do not verify earlier research results, namely that subjects find their performance in the first externally mediated self-confrontation via TV "less good" and that they should be deeply involved in this type of self-confrontation, reacting with extreme emotionality. Nor does the student teachers' satisfaction with their own achievement appear to determine what is observed on a TV monitor and the way in which it is evaluated, since repeated confrontations with the same micro-lesson lead to significant revaluations.

In the one case in which a tutoring effect has been proved, the analysis result implies that the tutor's influence led to the student teachers' finding it more pleasant to view themselves on the TV screen. Some form of reassurance from a tutor probably results in the student teachers' retaining their impressions from the first viewing. It is, however, difficult to judge whether this effect is desirable, since the tutor's reassurance could very well be seen as a reinforcement of the student teachers' defensive battle positions adopted towards the self-confrontation experience, thus removing the effect of repeated confrontations with their own video-recorded micro-lessons. The tutor appears to maintain the student teachers' normal way of regarding themselves and this in its turn does not permit any change in a relative autonomy (i.e. freedom from the influence of authorities). If one keeps the two processes isolated, however, the picture is changed considerably. The student teachers then become compelled to achieve their own diagnoses and syntheses.

Finally it must be mentioned that repeated confrontations with the same lesson also lead to a significant change in the student teachers' opinion of the lesson. While the opinion is neither completely changed nor completely unchanged at the first and second viewings, a change takes place at the third viewing.

8. ALTERNATIVE TUTORS: ASSESSMENTS DURING AN EXPERIMENT

In this investigation the alternative to externally mediated self-confrontation via CCTV/VR has been traditional tutoring. But since it is quite conceivable that there are other forms that could be even more suitable for the purpose of helping the student teachers in the difficult task of analyzing themselves and the teaching process, they were given the opportunity of deciding between nine different alternatives. In question 12 (schedule II) they were instructed as follows:

Rank the following alternatives according to the benefit you think YOU yourself would gain from them. Mark the most important alternative number 1 and so on.

(1) viewings alone
(2) viewings plus comments from a tutor
(3) viewings and comments from a lecturer in methodology
(4) viewings and comments from a lecturer in education
(5) viewings and comments from a psychologist
(6) viewings and comments from a pupil
(7) viewings and comments from a fellow-student teacher
(8) viewings and comments from some other person. Who?
(9) some other arrangement. Which?

Each time schedule II was administered the student teachers were asked once more to rank the alternatives. Considering the results described in Chapter 7, it was assumed namely that

1. the student teachers, at least in the beginning, wish to see the viewings alone, but that they later desire some form of counselling
2. student teachers gradually come to give some forms of counselling priority
3. the student teachers primarily rank some form of counselling other than the traditional one
4. the student teachers suggest new, perhaps unconventional forms of counselling as they become better acquainted with the self-confrontation process.

During the experiment two groups (1, 3) with 24 student teachers in each, ranked the alternatives in question 12 six times, i.e. we have for each viewing 48 rankings of nine alternative forms of counselling.

The first step in the statistical analysis was assessing the degree of agreement in ranking between the student teachers within each group. For this purpose Kendall's concordance coefficient (W) was calculated (for a more detailed description, see Siegel, 1956, pp. 229-239). A high or significant W value means that the student teachers rank the nine alternatives similarly. If the degree of agreement between the student teachers is sufficiently high ($\alpha = .01$), the ranking totals can be used to state the importance placed by the student teachers on the different forms of counselling. The result of this analysis is presented in Table 14.

Table 14. Degree of agreement of student teachers' ranking of nine different forms of tutoring (question 12): Concordance coefficient (N)

Group	Viewing occasion					
	1	2	3	4	5	6
1	.57	.54	.59	.55	.53	.53
3	.67	.61	.61	.58	.62	.59

All the coefficients presented in Table 14 are significant.

The second step in the analysis was an estimation of the degree of agreement between groups 1 and 3 in the ranking of the alternatives in question 12. The degree of agreement between the groups is W = .76. This result means that the ranking of both groups is the same, i.e. they rank the alternative forms of counselling in the following way:

1.5 viewings and comments from a tutor
1.5 viewings and comments from a lecturer in methodology
3.0 viewings and comments from a lecturer in education
4.0 viewings and comments from a pupil
5.0 viewings and comments from a psychologist
6.0 viewings and comments from a fellow-student teacher
7.0 viewings alone
8.0 viewings and comments from some other person. Who?
9.0 some other arrangement. Which?

This ranking means that the student teachers hardly wish to view their micro-lessons alone. What they want primarily is counselling from either a tutor or a lecturer in methodology, i.e. they want the traditional form of tutoring. Assumption 3 is not verified by the student teachers' ranking. Nor have the student teachers given any alternative suggestions or stated anyone else that they could consider as tutor. Thus assumption 4 can also be rejected. On the other hand the student teachers expect to get more from the comments of a pupil than from those of e.g. a psychologist. Particular note should be taken here of the ranking given to comments from a fellow-student. It is very common for the student teachers to have their teaching commented on by a fellow-student, but they do not seem to value this form of counselling during the second term of their training.

In order that we should be able to test assumptions 1 and 2, namely the extent to which the student teachers, as a result of repeated confrontations, first wish to see the viewings alone but gradually give different forms of counselling priority, the relation between the different viewings [illegible]s studied. The degree of agreement between the viewings is for group [illegible] W = .06 and for group 3 W = .03. This result means that the student teachers want different types of counselling at each separate viewing, since there is no relation at all in the student teachers′ ranking of the alternative forms of counselling between the different viewing occasions. This result supports the assumption that the forms of counselling desired by the student teachers differ on the various viewing occasions.

In summing up it can be said that the student teachers′ rankings express a wish for counselling from a tutor or lecturer in methodology. The examination of the separate viewings has shown that the student teachers express a wish for different forms of counselling at different viewings. But since there is no relation in the ranking between different viewings, it is unfortunately impossible to say which form of counselling is desired at each respective viewing.

ANALYSIS 2. REPEATED CONFRONTATIONS SIX WEEKS AND TWO YEARS AFTER AN EXPERIMENT

9. ASSESSMENT AND EVALUATION SCHEDULE F III: A LEVEL ANALYSIS OF STUDENT TEACHERS' ASSESSMENTS

9.1 Some introductory comments

In recent years an increasing number of research reports have been published, describing and evaluating the use and effects of externally mediated self-confrontation via CCTV/VR or film. The great majority of the reports, however, describe the use of this confrontation technique in connection with psychotherapeutic and clinical treatment. But the technique has also been tried out in other fields, such as general education, industry, and military training. Only a few investigations (Boone & Goldberg, 1969; Dieker, Crane & Brown, 1971; Roberts, 1972) have studied how persons react to repeated confrontations with their own video-recorded behaviours. In these studies, however, the subjects have at each viewing been confronted with their own behaviour in new situations, which means that what has been studied has been not the subjects' re-analyses, but their analyses of new situations. In addition the control of the intervals of time between the recording and the viewing has not been satisfactory. Nor have the intervals of time between the test occasions been controlled, with the exception of the investigation by Roberts (1972). Roberts controls the intervals of time between the recording and the viewing, but no conclusion can be drawn concerning the subjects' re-analyses in repeated confrontations, either from this study or from the others named above.

As far as I know, no investigation into student teachers' re-analyses of their own video-recorded micro-lessons several weeks or years after they were recorded has been published. An analysis follows of the way in which student teachers assess their own video-recorded lessons at the end of the second term of their teacher training, i.e. six weeks after the experiment and at the end of their training at the school of education, i.e. during their sixth term. The purpose of these re-assessments is to study whether and to what extent the teacher training has had any effect on the student teachers' perception and evaluation of their own micro-lessons during the experiment.

9.2 The reliability of the measurements

The reliability of the assessment and evaluation schedule F III was examined and discussed in detail in Bierschenk (1972, pp. 129-134). The ANOVA tables that will be evaluated below permit a very detailed analysis. But in order to avoid making this account too detailed, only the separate a priori defined variable domains, i. e. the summation variables, will be analyzed.

In order to obtain an assessment of the reliability of the separate variable domains, Cronbach's "coefficient alpha" (α_c) (Lord & Novick, 1968, pp. 87-90) was calculated for each domain and each teaching occasion. In addition the product moment correlation between the assessment of the video-recorded material during the experiment (1st time) and the assessment six weeks (2nd time) and two years (3rd time) after the completion of the experiment was calculated for each summation variable. First α_C is presented and discussed. Table 15 gives α_C for each time of assessment.

Table 15. Reliability of summation variables: alfa-coefficient (α_C), perception (a_1), evaluation (a_2)

Variable domain	Micro-lesson 1 Viewing occasion			Micro-lesson 2 Viewing occasion		
	1	2	3	1	2	3
perception (a_1)						
1 Ego-ego	.72	.79	.76	.79	.83	.82
2 Ego-pupil	.70	.62	.53	.57	.55	.64
3 Ego-NPO	.33	.35	.12	.35	.39	.34
4 Pupil-ego	.57	.64	.51	.64	.78	.75
5 Pupil-pupil	.00	.26	.25	.31	.52	.63
6 Pupil-NPO	.64	.68	.61	.53	.55	.65
evaluation (a_2)						
1 Ego-ego	.00	.13	.02	.12	.20	.18
2 Ego-pupil	.16	.33	.24	.12	.30	.48
3 Ego-NPO	.37	.46	.45	.43	.52	.52
4 Pupil-ego	.74	.78	.78	.80	.79	.80
5 Pupil-pupil	.00	.00	.00	.00	.00	.00
6 Pupil-NPO	.31	.44	.29	.24	.10	.34

As can be seen from Table 15, α_C varies for the separate variable domains. But since the coefficients for the 1st time have been discussed earlier and explanations suggested, attention is here focussed only on a comparison between the different times. In general the student teachers' perception in connection with micro-lesson 1 appears to be more stable than for micro-lesson 2. It is also worth noting that the reliability in a_1 for summation variables 4 and 5 has become better. If the α_C coefficients as calculated for times 1, 2 and 3 are compared, the same relations emerge. In the light of the discussion of small co-variances (Bierschenk, 1972 a, pp. 132-134), the summation variables have a satisfactory reliability, despite that α_C for a_2 within variable domain 5 is zero.

Table 16 presents for the separate summation variables the product moment correlations (r) between times 1, 2 and 3.

Table 16. Product moment correlations for summation variables between viewing occasions (1, 2, 3): Perception (a_1), evaluation (a_2)

Variable domain	Micro-lesson 1 Viewing occasion			Micro-lesson 2 Viewing occasion		
	(1, 2)	(1, 3)	(2, 3)	(1, 2)	(1, 3)	(2, 3)
perception (a_1)						
1 Ego-ego	.64	.61	.72	.84	.65	.67
2 Ego-pupil	.73	.57	.69	.75	.56	.66
3 Ego-NPO	.62	.51	.65	.67	.58	.66
4 Pupil-ego	.46	.49	.54	.64	.54	.73
5 Pupil-pupil	.62	.50	.58	.57	.58	.76
6 Pupil-NPO	.65	.49	.65	.53	.45	.62
evaluation (a_2)						
1 Ego-ego	.30	.28	.38	.55	.39	.32
2 Ego-pupil	.44	.41	.60	.69	.49	.54
3 Ego-NPO	.43	.29	.45	.73	.56	.63
4 Pupil-ego	.62	.62	.64	.70	.63	.74
5 Pupil-pupil	.40	.35	.40	.33	.16	.30
6 Pupil-NPO	.24	.20	.40	.51	.33	.36

Criteria (n = 96, $\alpha = .01$): r = .26

Table 16 shows how r varies to a larger or smaller extent within a variable domain, depending on the confrontation occasion concerned. It was expected that the correlations between the 1st and 3rd occasions would be lower than the correlations between the 1st and 2nd occasions. But we did not expect the correlations between the 2nd and 3rd occasions to be consistently higher. Perhaps this higher relation can be explained by the fact that all 96 student teachers saw their lessons on the 2nd occasion. No more definite conclusion can be drawn, however, from this result. The correlations between occasions 1-3 are moderate, but considering the complexity of the subject and that only three correlations fall below the level of significance, plus the fact that there are (with one exception) no differences of any great size between the correlations, the test-retest reliability must be considered satisfactory.

9.3 Design of analysis of variance

After the completion of the self-confrontation experiment, all the student teachers who had participated in the experiment were shown their own video-recorded lessons. This means that the experimental conditions for the follow-up were not maintained. The reason for this was that all the student teachers were to be given the opportunity of seeing their own lessons. It is also conceivable, however, that such a measure could easily make any possible experimental effects either more or less distinct.

By including the student teachers' repeated self-assessments in the original design of the analysis of variance (as factor R), it becomes possible to study the influence varying numbers of repeated viewings, combined with varying intervals of time, have on the student teachers' assessments, since:

group 1	saw themselves ten times in teaching situations. Traditional tutoring was included at the first and fourth viewings
group 2	saw themselves four times in teaching situations, which had been preceded by two tutoring sessions
group 3	saw themselves ten times in teaching situations with no tutoring at all
group 4	saw themselves four times in teaching situations with no tutoring at all

A detailed description of the plan of investigation, measurements and measuring occasion is to be found in Bierschenk (1972 a, pp. 63 and 80).

The design of the analysis of variance for the evaluation of the student teachers' repeated self-assessments four weeks and two years after the completion of the experiment is shown in Table 17.

Table 17. Analysis of variance design of the repeated measurements of student teachers' self-confrontation with micro-lessons after the end of the experiment

Index	H	T	U	R	A	I	V
No. of levels	2	2	2	3	2	24	79
Size of population	2	2	2	3	2	∞	79

For description of indexes H, T, U, I, A and V, cf Table 1.

As can be seen from Table 17, a new factor occurs, namely factor R with three levels, in which

r_1: viewing about 10 minutes after the end of the lesson
r_2: viewing six weeks after the end of the experiment
r_3: viewing two years after the end of the experiment

All the main effects in the student teachers' self-assessments according to the assessment and evaluation schedule F III will be tested. In addition the existence of interaction will also be tested. But when the results are presented, there will be a more detailed discussion of factor R and all the combinations of factors containing this factor. In the evaluation of the experiment's different sets of data, the analysis and presentation procedure used again involved three steps:

1. interpretation of the pattern in the F tests
2. examination of the precision and power in the F tests
3. post-testing

9.3.1 The pattern in the F tests

A separate ANOVA was carried out for each variable domain. The results for all six variable domains are presented in Table 18.

Within variable domain 1, i.e. the ego-ego relation, there are main effects in factors U, R and A. But there are also demonstrable effects within the interaction TR, UA, RA and TRA. A comparison with the student teachers' self-assessment during the experiment shows that there too there had been effects in factor U and A and in the combination UA. There was on the other hand no demonstrable effect for the T factor. Therefore it is surprising that both the TR and the TRA interaction indicate demonstrable effects. If these effects are compared to what has emerged from the analysis of the student teachers' self-assessment during the experiment, the following can be established: During the experiment traditional tutoring has produced no effect, but now such an effect can be seen. In addition the student teachers' perception differed from the evaluation during the experiment, while no such effect is to be found in Table 18. The main effect in factor R and the effect in the RA interaction indicate that either the student teachers' perception or their evaluation of the video-recorded micro-lessons differs from one viewing occasion to another.

Within variable domain 3, i.e. the ego-NPO relation, factors H, U, R and A resulted in demonstrable effects. Effects can also be shown within the TH, UR, UA, TUA, RA and TURA interactions. Of these the effect in the H factor and the effects within the TH interaction were not found in the earlier analysis. The effects in the interactions UR, RA and TURA indicate in addition that repeated viewings influence the student teachers' assessment of the micro-lessons, that perception or evaluation are influenced and that externally mediated self-confrontation vi a CCTV/VR influences the student teachers' perception and evaluation of the micro-lessons on different occasions.

Within variable domain 4, i.e. the pupil-ego relation, the effects within the RA and HURA interaction provide information in addition to that discussed in earlier contexts. On the other hand the effects in factor A and the interactions TH, THA and AU have been shown in the analysis of the student teachers' self-assessment during the experiment.

Within variable domain 5, i.e. the pupil-pupil relation, there are demonstrable effects in factors T, H and U, which were not found in the previous analysis.

In addition there are effects within the UA and TUA interactions that are all new. The effects within factor R and the RA interaction indicate that within this variable domain too the repeated viewings have influenced the student teachers' perception and evaluation.

Table 18. Student teachers' self-assessments after the end of the experiment: Summary of significant F-tests

Source	Variable domain 1	2	3	4	5	6
T					**	
H		*	*		**	*
TH		*	*	*		*
U	**	**	**		*	
TU						*
HU						
THU						
R	**	**	**		**	**
TR	*					
HR						
THR						
A	**		**	**	**	**
TA						
HA					**	**
THA				*		*
UR			*			
TUR						
HUR						
THUR						
UA	**	**	**	**	**	
TUA			*		**	
HUA						*
THUA						
RA	**	**	**	**	*	**
TRA	*					
HRA						
THRA						
URA						
TURA			**			
HURA				*		*
THURA						

T: Externally mediated self-confrontation via CCTV/VR-technique
H: Traditional tutoring
U: Micro-lesson (1, 2)
R: Viewing occasion (1, 2, 3)
A: Aspect (perception, evaluation)
**: $F_{.99}(1,92) = 6.78$, $F_{.99}(2,184) = 4.73$
*: $F_{.95}(1,92) = 3.89$, $F_{.95}(2,184) = 3.05$

Within variable domain 6, i.e. the pupil-NPO relation, there are demonstrable effects within factors H and U and within the TH interaction, all of which are new. As before, there are demonstrable effects within factor A and the combination of factors HA, THA and HUA. But since the HURA interaction has also resulted in a demonstrable effect, this suggests that the repeated viewings have also influenced the perception and evaluation of those student teachers given traditional tutoring. Finally, the effects in factor R and the factor combination RA indicate that either the perception or the evaluation of the student teachers has changed from one viewing to another.

The pattern in the F tests presented in Table 18 shows that the student teachers' perception and evaluation within all the variable domains have changed from one viewing to the other. The effects referring to factors A and U form a pattern that on all essential points agrees with the pattern in the analyses presented earlier (see Bierschenk, 1972 a, p. 140).

In contrast to the earlier analyses of the student teachers' self-assessment, where there was only one effect within the TH interaction in variable domains 2 and 4, the analyses summarized in Table 18 regarding factors T and H and the TH interaction resulted in nine effects. This is a very notable result considering the time intervals involved, since these should rather have had a levelling or accentuating effect. Even if the T, H and TH effects should prove not to "survive" the precision and power examination, they should be kept in mind.

9.3.2 Precision and power in the F tests

In order to avoid relatively small and uncertain effects being made the basis of result interpretation, the size and power of the effects in the F tests have been examined. This examination has been governed by the criteria that also governed the evaluation of analyses presented earlier (see Bierschenk, 1972, p. 144). For the purpose of estimating the variance of proportion, Hays' $\hat{\omega}^2$ index was calculated for the significant F tests given in Table 18 (see Hays, 1970, p. 407). The $\hat{\omega}^2$ values are presented in Appendix 1. As a measure of a particular effect's size (ES), Cohen's f (see Cohen, 1969, p. 278) was also calculated. Over this index the probability (g) that an effect of a particular size will be demonstrable at the chosen level of power has then been determined. The size of the effects stated in Table 18 are presented in Table 19, while the power is given in Table 20.

Table 19. Summary of effect (f) values for the significant F tests in student teachers' self-assessments after the end of the experiment

Source	Variable domain					
	1	2	3	4	5	6
T					.09	
H		(.07)	(.06)		.10	(.06)
TH		(.07)	(.09)	(.11)		(.09)
U	.24	.16	.11		(.07)	
TU						(.11)
HU						
THU						
R	.31	.37	.18		.14	.26
TR	(.15)					
HR						
THR						
A	.14		.56	.65	.21	.29
TA						
HA					.14	.14
THA				(.15)		.13
UR			(.14)			
TUR						
HUR						
THUR						
UA	.14	.14	.12	.12	.13	
TUA			(.13)		(.17)	
HUA						(.18)
THUA						
RA	.31	.42	.37	.16	(.13)	.32
TRA	(.23)					
HRA						
THRA						
URA						
TURA			(.34)			
HURA				(.30)		(.44)
THURA						

T: Externally mediated self-confrontation via CCTV/VR-technique
H: Traditional tutoring
U: Micro-lesson (1, 2)
R: Viewing occasion (1, 2, 3)
A: Aspect (perception, evaluation)
( ): $F_{.95}(1,92) = 3.89$, $F_{.95}(2,184) = 3.05$

Table 20. Summary of the power (g) values for the significant F tests in student teachers' self-assessments after the end of the experiment

Source	Variable domain 1	2	3	4	5	6
T					. 68	
H		(. 60)	(. 50)		. 77	(. 50
TH		(. 40)	(. 59)	(. 73)		(. 59)
U	>. 99	>. 99	. 81		(. 60)	
TU						(. 73)
HU						
THU						
R	>. 99	>. 99	>. 99		. 92	>. 99
TR	(. 89					
HR						
THR						
A	>. 99		>. 99	>. 99	>. 99	>. 99
TA						
HA					. 75	. 75
THA				(. 72		(. 59)
UR			. 82			
TUR						
HUR						
THUR						
UA	. 75	>. 75	. 58	. 58	. 66	
TUA			(. 59)		(. 80)	
HUA						(. 84)
THUA						
RA	>. 99	>. 99	>. 99	. 85	(. 75)	>. 99
TRA	(. 92)					
HRA						
THRA						
URA						
TURA			(. 85			
HURA				(. 89)		(. 99)
THURA						

T: Externally mediated self-confrontation via CCTV/VR-technique
H: Traditional tutoring
U: Micro-lesson (1, 2)
R: Viewing occasion (1, 2, 3)
A: Aspect (perception, evaluation)
( ): $F_{.95}(1, 92) = 3.89$, $F_{.95}(2, 184) = 3.05$

As can be seen from Table 19, the effects within factors T and H and within the TH interaction are small. The examination of the power within these effects shows (see Table 7) that only the effect within factor H (the pupil-pupil relation) satisfies the criterion $g > .70$.

Factor R shows one small and four medium sized effects. In all five F tests the power is very high.

Factor A produced two small and four medium sized effects, in which the power is very high.

The effects of the HA interaction within the pupil-pupil and pupil-NPO relations are small, but the power implies that the effects provide a satisfactory basis for interpretation. It should be mentioned here that in the analysis of the student teachers' self-assessment during the experiment these effects did not satisfy the criterion $g > .70$.

The effects of the UA interaction are small within five of the six variable domains and the power in the F tests can only be considered satisfactory within the ego-ego and the ego-pupil relations. The RA interaction resulted in five effects that became significant with $\alpha = .01$. Within the ego dimension the effects are medium sized and large, while within the pupil dimension they are small and medium. The power of all five effects is good.

To sum up, the examination of the size and power of the effects showed that within the ego dimension there are 14 effects that satisfy the criterion $\alpha = .01$ and $g > .70$. Within the pupil dimension 10 effects satisfy these demands.

Thus, the third stage of the analysis involved a total of 24 effects.

9.3.3 Post-testing

Since the examination of the precision and power of the significant F quotients shows that it is meaningful to analyze the simple effects in order to be able to make more detailed interpretations, from now on the contrast analyses will also be discussed in more detail. In interpreting the contrast analyses, it should be observed that the differences in the cell means are studied irrespective of the direction of the sign. Scheffé's test has been used for the post-testing.

9.3.3.1 Main effects

Within the pupil-pupil relation the effect in factor H can be considered to provide a conclusive foundation for interpretation. The cell means in factor H are for $h_1 = 4.55$ and for $h_2 = 4.30$. This result implies that the student teachers given traditional tutoring assess the pupil-pupil relations more positively than the student teachers not given this influence. No such effect has been demonstrable in the analysis of the student teachers' self-assessment during the experiment.

Within the ego dimension (variable domain 1-3) factor U has resulted in effects that can be considered to provide a satisfactory basis for interpretation. The cell means in factor U are given in Table 21.

Table 21. Cell means for Factor U (variable domains 1-3)

Variable domain	Level u_1	u_2
1	4.51	4.69
2	4.54	4.63
3	4.87	4.95

As can be seen from Table 21, the student teachers assess micro-lesson 2 more positively than micro-lesson 1. This result agrees well with the results presented earlier (see Bierschenk, 1972 b, App. 3:1, Table 1).

The repeated viewings of the video-recorded material have influenced the student teachers' assessments within five of the six subject-object relations. The examination of the power in these F tests showed that the power is very high and that the effects can be considered to form a conclusive basis for interpretation. The cell means in factor R are presented in Table 22.

Table 22. Cell means for Factor R (variable domains 1-6)

Variable domain	r_1	Level r_2	r_3	Scheffé's test Critical values	
1	4.70	4.64	4.47	.39	
2	4.69	4.69	4.48	.31	
3	4.97	4.92	4.82	.32	
4	4.97	4.96	4.94	.38	
5	4.52	4.41	4.35	.30	
6	5.45	5.26	5.05	.34	**

As can be seen from Table 22, the cell means do not differ markedly from each other, with the exception of the pupil-NPO relation, where r_1 is different to r_3. The pupils' reactions to the teaching are assessed less positively by the student teachers at the end of their teacher training than they were during the experiment. The assessments reflected by the cell means in Table 22 confirm the results presented in Bierschenk (1973), i.e. the student teachers' assessments become increasingly critical.

The main effects remaining are those in factor A, which show high power values in five of the six subject-object relations. The cell means are given in Table 23.

Table 23. Cell means for Factor A (variable domains 1-6)

Variable domain	Level a_1	a_2
1	4.73	4.47
2	4.58	4.59
3	4.52	5.30
4	6.03	3.88
5	4.72	4.13
6	4.91	5.60

Table 23 shows how the values for the student teachers' perception (a_1) express the way in which the positive attributes of the behavioural aspects within all the subject-object relations dominated. The result in the evaluation dimension shows that the student teachers evaluate the occurrence of these behavioural aspects as being essential. The relative low value for variable domain 4 indicates that the student teachers evaluate the pupils' "socially provocative behaviour" (if such had occurred) as rather troublesome. The pupils' undisciplined behaviour (variable domain 5) was evaluated as being relatively little trouble. If the values given in Table 23 are compared to the results reported earlier of the student teachers' perception and evaluation (see Bierschenk, 1972 b, App. 3:1, Table 2), it emerges that the student teachers' perception has become consistently more negative (i.e. more critical) while the evaluation is unchanged.

9.3.3.2 Interaction effects

Of the interaction effects, the HA interaction within the pupil-pupil and pupil-NPO relations satisfies the criteria $\alpha = .01$ and $g > .70$. The cell means for the HA interaction within the pupil-pupil relation are presented in Table 24.

Table 24. Contrast analysis HA (Pupil-pupil relation)

Order	1	2	3	4
Source	h_1a_2	h_2a_2	h_2a_1	h_1a_1
m	4.12	4.14	4.47	4.98
h_1a_2		.02	.35	.86
h_2a_2			.33	.84
h_2a_1				.51
h_1a_1				

Scheffé's test
Critical value 1.03

As can be seen from Table 24, the cell means do not differ markedly from each other. The pupil-pupil relation refers in this context primarily to the pupils' sense of order, i. e. the pupils' internal discipline. Within this contrast the earlier analyses established a marked difference between the tutored group's perception and evaluation (see Bierschenk, 1972 b, App. 3:6, Table 7). But the power in this F quotient did not satisfy g > .70, and for this reason the effect was not discussed.

The cell means for the HA interaction within the pupil-NPO relation are presented in Table 25.

Table 25. Contrast analysis HA (Pupil-NPO relation)

Order	1	2	3	4
Source	h_2a_1	h_1a_1	h_1a_2	h_2a_2
m	4.68	5.13	5.59	5.61
h_2a_1		.45	.91**	.93**
h_1a_1			.46	.48
h_1a_2				.02
h_2a_2				

Scheffé's test
Critical value .87

As can be seen from Table 25, two cell means differ markedly from each other. From a psychological point of view, however, only the difference between h_2a_1 and h_2a_2 is important. This effect indicates that the student teachers who were not given traditional tutoring in their perception of the pupils' reactions to the teaching express a relatively moderate reaction in the pupils and that the student teachers evaluate positive reactions as being essential. This effect was not found in the earlier analysis of the student teachers' self-assessment during the experiment (see Bierschenk, 1972 a, p. 145).

UA interaction with a satisfactory power value is to be found within the ego-ego and ego-pupil relations. In Table 26 the cell means are given for the UA interaction within the ego-ego relation.

Table 26 shows that only the cell means for u_1a_2 and u_2a_1 differ markedly. This effect is not easy to interpret, however, since it means that the student teachers' evaluation in lesson 1 differs from their perception in lesson 2. The most interesting comparisons psychologically, i. e. the variations within the perception and evaluation respectively, show no great change.

Table 26. Contrast analysis UA (Ego-ego relation)

Order	1	2	3	4
Source	u_1a_2	u_2a_2	u_1a_1	u_2a_1
m	4.41	4.53	4.61	4.85
u_1a_2		.12	.20	.44**
u_2a_2			.08	.32
u_1a_1				.24
u_2a_1				

Scheffé's test
Critical value .36

The cell means for the UA interaction within the ego-pupil relation are presented in Table 27.

Table 27. Contrast analysis UA (Ego-pupil relation)

Order	1	2	3	4
Source	u_1a_1	u_1a_2	u_2a_2	u_2a_1
m	4.51	4.57	4.61	4.66
u_1a_1		.06	.10	.15
u_1a_2			.04	.09
u_2a_2				.05
u_2a_1				

Scheffé's test
Critical value .53

Table 27 shows no marked differences between the cell means. The changes within the student teachers' perception and evaluation are marginal. The effect in the UA interaction did not reach a satisfactory power value in the earlier analysis of the student teachers' self-assessment during the experiment.

Of the interaction effects that have the power values g > .70, the only one remaining for closer analysis is the RA interaction within variable domains 1, 2, 3, 4 and 6. Before these interactions are examined, the results of the contrast analyses carried out so far will be summarized. Briefly:

1. The effects within the HA interaction refer to the tutoring group's perception and evaluation of the pupils' behaviour to one another and the pupils' reactions to the teaching situation. The result implies that traditional tutoring influences the student teachers.

Within the pupil-pupil relation there were no marked differences in the cell means.

Within the pupil-NPO relation the cell means differ markedly from each other in two cases. The difference that is most interesting from the interpretation point of view shows that the perception and evaluation of the student teachers who were not given traditional tutoring differ noticeably, while the perception and evaluation of the student teachers who were given traditional tutoring are congruent.

2. The effects within the UA interplay exist only within the ego-ego and ego-pupil relations. There is no difference in the cell means that is of any importance from the interpretation point of view.

   The cell means imply, however, marginal changes in a positive direction. The student teachers' evaluation follows their perception, i. e. insofar as they observe positive changes, they also increase the evaluation of the phenomenon in question to a corresponding degree.

Since there are demonstrable effects within the RA interaction that in addition also satisfy the criterion $g > .70$, it will be possible to examine more closely how the student teachers' perception and evaluation have changed during their training at the school of education. First the RA interaction within the ego dimension will be examined. The cell means are given in Tables 28, 29 and 30. They are followed by an examination of the RA interplay within the pupil dimension. The cell means for this are presented in Tables 31 and 32.

Table 28. Contrast analysis RA (Ego-ego relation)

Order	1	2	3	4	5	6
Source	r_3a_2	r_2a_2	r_1a_2	r_3a_1	r_2a_1	r_1a_1
m	4.42	4.50	4.50	4.52	4.77	4.90
r_3a_2		.08	.08	.10	.35	.48
r_2a_2			.00	.02	.27	.40
r_1a_2				.02	.27	.40
r_3a_1					.25	.38
r_2a_1						.13
r_1a_1						

Scheffé's test
Critical value .54

As can be seen from Table 28, neither the student teachers' perception nor their evaluation differs from one viewing occasion to the next. Moreover the cell values show that the levels of perception and evaluation are in agreement. This means that the student teachers have perceived a moderate occurrence of or quality in the aspects and evaluated these as being neither essential nor inessential.

Table 29. Contrast analysis RA (Ego-pupil relation)

Order	1	2	3	4	5	6
Source	r_3a_1	r_2a_2	r_3a_2	r_2a_1	r_1a_2	r_1a_1
m	4.38	4.57	4.59	4.60	4.62	4.76
r_3a_1		.19	.21	.22	.24	.38
r_2a_2			.02	.03	.05	.19
r_3a_2				.01	.03	.17
r_2a_1					.02	.16
r_1a_2						.14
r_1a_1						

Scheffé's test
Critical value .49

As can be seen from Table 29, the student teachers' perception and evaluation do not differ between the different viewing occasions. Within the ego-pupil relation too they have observed a moderate occurrence of or the quality of the aspects that define this variable domain. The cell values express the fact that the student teachers evaluate the existence as being neither essential nor inessential.

As can be seen from Table 30, the student teachers' perception or evaluation do not differ markedly between the viewing occasions in the the ego-NPO relation either. On the other hand, despite only moderate intensity in the aspects within this variable domain, the student teachers evaluate them as being essential.

Table 30. Contrast analysis RA (Ego-NPO relation)

Order	1	2	3	4	5	6
Source	r_3a_1	r_2a_1	r_1a_1	r_1a_2	r_2a_2	r_3a_2
m	4.33	4.56	4.66	5.28	5.28	5.33
r_3a_1		.23	.33	.95**	.95**	1.00**
r_2a_1			.10	.72**	.72**	.77**
r_1a_1				.62**	.62**	.67**
r_1a_2					.00	.05
r_2a_2						.05
r_3a_2						

Scheffé's test
Critical value .48

Table 31. Contrast analysis RA (Pupil-ego relation)

Order	1	2	3	4	5	6
Source	r_1a_2	r_2a_2	r_3a_2	r_3a_1	r_2a_1	r_1a_1
m	3.82	3.90	3.93	5.96	6.01	6.11
r_1a_2		.08	.11	2.14**	2.19**	2.29**
r_2a_2			.03	2.06**	2.11**	2.21**
r_3a_2				2.03**	2.08**	2.18**
r_3a_1					.05	.15
r_2a_1						.10
r_1a_1						

Scheffé's test
Critical value .57

Table 31 shows that the student teachers' perception and evaluation are unchanged. The cell means indicate that on the whole the student teachers have not perceived any socially provocative behaviour in the pupils during the experiment and the subsequent viewings of the video-recorded material. But if such behaviour had occurred it would have been evaluated as being troublesome for their own teaching. Thus, no change has occured in the student teachers' evaluation.

As can be seen from Table 32, the student teachers' perception of the pupils' reaction to the subject, teaching and environment differ markedly from that which had been observed during the experiment. Two years after the experiment the perception is noticeably less positive than it was during the experiment or six weeks after the completion of the experiment. On the other hand the perception six weeks after the experiment does not differ noticeably from the perception during the experiment. Nor has the student teachers' evaluation changed. They maintain their evaluation, irrespective of which viewing it is, that it is essential that the pupils should react positively to the micro-lessons.

Table 32. Contrast analysis RA (Pupil-NPO relation)

Order	1	2	3	4	5	6
Source	r_3a_1	r_2a_1	r_1a_1	r_2a_2	r_1a_2	r_3a_2
m	4.49	4.95	5.27	5.57	5.62	5.62
r_3a_1		.46**	.78**	1.08**	1.13**	1.13**
r_2a_1			.32	.62**	.67**	.67**
r_1a_1				.30	.35	.35
r_2a_2					.05	.05
r_1a_2						.00
r_3a_2						
Scheffé's test Critical value .46						

9.3.4 Summary of student teachers' assessment and evaluation by means of schedule F III

The step-wise evaluation of the student teachers' re-analyses of the experiment's video-recorded micro-lessons has shown in the first step that there are nine effects referring to the influence traditional tutoring (H), externally mediated self-confrontation via CCTV/VR (T) and the interaction between T and H, as opposed to two effects in the analysis of the student teachers' assessments and evaluations during the experiment. The result is surprising insofar as it should hold implications for continued research work. It was namely expected that the intervals of time would level off such effects, but instead they have been accentuated. In addition there are a number of effects in the interaction that are important for the analysis.

As has been pointed out earlier (see Bierschenk, 1972 a, p. 141), statistically significant F tests and a meaningful pattern in the F tests are nonetheless an insufficient basis if one is to be able to assess the extent to which the experimental data can be considered a conclusive basis for interpretation. For this reason the second step of the analysis was carried out, which involved examining the effect size of the significant F quotients and calculating the power in the F tests. For if the values for α and g are fixed, it becomes possible to say whether the effects actually observed can be made the basis of detailed interpretations. The research literature abounds in examples where only significant F tests form the foundation for interpretation.

The result of step 2 of the analysis shows that only 24 of 48 demonstrable effects satisfy our criteria $\alpha = .01$ and $g > .70$.

It was hardly to be expected that the experimental influence should have any influence outside the experimental situation, at least as far as viewing 3 (at the end of the teacher training) was concerned. The examination of precision and power did also show that eight of the nine effects in factors T and H and the TH interaction are very small, with low power. It is therefore all the more surprising to find an effect with satisfactory power in factor H, where the cell means indicate that student teachers given traditional tutoring assess the pupil-pupil relation more positively than the student teachers who were not given this influence. The HA interaction indicates that the tutoring influenced the student teachers' perception, while the evaluation does not appear to have been influenced by the comments of the tutor.

The other interaction effects examined in this analysis in the form of post-testing will not be discussed here, since on all essential points they confirm the results that have emerged in the earlier analyses.

The point that should be of great importance for teacher training is that this analysis has shown that neither the student teachers' perception nor their evaluation changed to any extent worth mentioning during the teacher training, with the exception of the effects within the pupil-pupil and pupil-NPO relations. The contrast analyses of the RA interaction show that this is the case in five of the six variable domains. If the means are studied more closely, it becomes plain that changes (even marginal ones) in perception are accompanied by changes (equally marginal) in evaluation. But there are also other cases where the perception has changed more markedly, even though the evaluation has remained on the same level as before. These circumstances were established in the earlier analyses and have been confirmed in this one. It seems as if in certain cases the evaluation followed the perception like a shadow.

As Rosenthal & Gaito (1963, p. 33) point out, the publication of research results often depends on whether there are any significant results (preferably $\alpha = .01$ and $\alpha = .05$). This fixation on significances can lead to essential results passing unnoticed by either report writers or publishers because the significant power values are not observed. If this analysis had led to interpretable differences between the cell means within factor R and the factor combination RA, the explanation given would undoubtedly be: (1) that it is the teacher training that has influenced the student teachers' perception and/or evaluation of their own performances during the second term of the teacher training, (2) that it is self-evident that the student teachers are at the end of their teacher training (6th term) much better trained in seeing the extent to which they succeeded and failed in their teaching, (3) that the evaluation of the importance of single attributes has been changed by the teacher training, (4) that student teachers have been trained in observation of pupils and (5) that the student teachers have better skills in and knowledge of educational psychology for the observation and analysis of complex interactions etc.

Possible explanations for the acceptance of the null hypothesis in connection with the experiment were given at the beginning. The result that two years of teacher training has not influenced the student teachers' perception and evaluation more markedly is unexpected, however. It would be interesting to find an explanation of why the teacher training has influenced the student teachers so marginally. A first step in an analysis of the student teachers' perception and evaluation of the attributes included in the assessment and evaluation schedule F III would be to analyze more closely the RV interaction within the separate variable domains.

9.4 Design of analysis of variance for differences between the assessments of educational experts and student teachers

One part of the self-confrontation experiment was the assessment of the video-recorded material by educational experts. Since the student teachers and educational experts made their assessments by means of schedule F III, it became possible also to study whether there are differences between the assessments of experts and student teachers. With the assumption that the teacher training has influenced the student teachers' perception and evaluation, ANOVA was carried out for differences between the experts' mean assessment and the student teachers' self-assessment.

Before this analysis is described, however, a brief account will be given of the results the ANOVA for the differences during the self-confrontation experiment produced. As can be seen from Bierschenk (1972, pp. 219-228), factors T, H and U have not led to any demonstrable difference that at the same time satisfies the criterion $g \geq .70$.

Within the ego-pupil relation, the ATH interaction satisfied this requirement and within the ego-NPO relation the AUT interaction did so. For the pupil dimension, on the other hand, the UH interaction in the pupil-pupil relation and the ATH and AUH interactions within the pupil-NPO relation satisfied the requirements for interpretation.

Table 33. Summary of significant F tests for differences between student teachers' self-assessments during the sixth term and educational experts' assessments during the student teachers' second term

Source	Variable domain 1	2	3	4	5	6
T					*	
H		*				*
TH	*		*	**		
U	**					
UT						
UH	*					
UTH						
A	**	**	**		**	**
AT						
AH						*
ATH	*	**		**		**
AU						
AUT						
AUH		**		**		
AUTH				*		
V	**	**	**	**	**	
TV						
HV						
THV	*					
UV						
UTV						
UHV						
UTHV						
AV	**	**	**	**	**	**
ATV						
AHV						
ATHV	*		*	*		
AUV						
AUTV						
AUHV					*	
AUTHV						

T: Externally mediated self-confrontation via CCTV/VR-technique
H: Traditional tutoring (dyadic confrontation)
U: Micro-lesson (1, 2)
A: Aspect (perception, evaluation)
V: Assessment and evaluation schedule F III
*: $F_{.99}(1,92) = 7.08$
**: $F_{.95}(1,92) = 4.00$

The next section studies the objectivity of the student teachers' self-assessment, defined by means of the mean assessment of the assessors. If the student teachers have assessed their own teaching "objectively" during the sixth term, there should be no numerical difference between the student teachers' assessments and the assessments made by the experts during the student teachers' second term. If differences occur, they imply, according to the operational definition above, that the student teachers' self-assessment is not in agreement with "reality". The procedure for analysis and reporting is the same as that used in the analyses described above.

9.4.1 The pattern in the F tests

A separate ANOVA was carried out for each variable domain. The result of the analyses for the separate variable domains are summarized in Table 33.

Within the ego-pupil relation there is a main effect in factor H. There is in addition one main effect within factor T in the pupil-pupil relation and one main effect within factor T in the pupil-NPO relation. None of these effects could be seen during the student teachers' second term, i.e. during the experiment. In factor U there is one effect within the ego-ego relation. This effect was also found during the experiment. The effect in the pupil-ego relation, on the other hand, has not emerged now. It must also be mentioned that the differences regarding factor A within the ego dimension have become more marked.

As far as the interaction effects are concerned, the effect within the UH interaction has appeared in the ego-ego relation. The effect within the ATH interaction already existed during the experiment.

Within the ego-pupil relation there is as before an effect within the ATH interaction. But the effect within the AUH interaction has only appeared now. The interaction effects that existed earlier within the ego-NPO relation have not been found in this analysis.

Within the pupil-ego and pupil-pupil relations the interaction effects found earlier have not appeared here, with the exception of the effect in the TH interaction, but instead effects within the AUH and AUTH interactions have been found.

Within the pupil-NPO relation the change has been such that the effect in the AUH interaction is no longer seen, while as before an effect can still be found within the ATH interaction. But the effect within the UH interaction can no longer be shown. Now instead an effect has appeared within the AH interaction.

To sum up, we have as in the earlier analysis been able to find 19 effects. There has been a shift, however. Considering the assumption that the teacher training has a levelling effect on the influence administered during the second term, it is unexpected that now (in the sixth term) there are more T, H and TH effects than had been the case previously. Moreover, there has been a greater differentiation regarding differences in perception and evaluation. In addition most of the changes have taken place within the pupil dimension. Of 10 effects, 8 effects that were shown during the second term have not been found in this analysis, but instead 7 new effects have become apparent.

Within the ego dimension 9 effects were shown during the second term, 4 of which were not found in this analysis, while 6 new effects appeared.

Before any more detailed analysis and interpretation are made, however, the size of the effects will be examined. The purpose of this examination is to guarantee that only interpretable effects are subjected to posttesting. The precision and power in the F tests are presented in Table 34.

Table 34. Summary of effect (f) and power (g) values for differences between student teachers' self-assessments and educational experts' assessments

Source	Variable domain 1	2	3	4	5	6
1. Size of effect (f)						
T					(.12)	
H		(.13)				(.12)
TH	(.16)		(.15)	.21		
U	.17					
UT						
UH	(.15)					
UTH						
A	.18	.61	.33		.15	.46
AT						
AH						(.16)
ATH	(.25)	.39		.32		.35
AU						
AUT						
AUH		.26		.27		
AUTH				(.31)		
2. Power (g)						
T					(.64)	
H		(.71)				(.64)
TH	(.60)		(.55)	.62		
U	.77					
UT						
UH	(.55)					
UTH						
A	.82	>.99	>.99		.67	>.99
AT						
AH						(.60)
ATH	(.69)	.96		.70		.79
AU						
AUT						
AUH		.48		.52		
AUTH				(.69)		

T: Externally mediated self-confrontation via TV/VR-technique
H: Traditional tutoring (dyadic confrontation)
U: Micro-lesson (1, 2)
A: Aspect (perception, evaluation)
( ): $F_{.95}(1,92) = 4.00$

9.4.2 Precision and power in the F tests

As can be seen from Table 34, the effects within factors T and H and the factor combination TH are too small to provide a satisfactory basis for interpretation. The effects that satisfy the criterion for interpretation are to be found within the ego-ego relation for factor U. The effects in factor A, with the exception of within the pupil-pupil relation, satisfy this criterion ($g > .70$). Compared to the results presented in Bierschenk (1972, p. 217), the effect in factor U is unchanged. On the other hand there are now (two years after the completion of the experiment) several demonstrable effects in factor A. While previously there was only one interpretable effect within the ego-pupil relation, there are now interpretable effects within all the variable domains, with the exception of the pupil-pupil relation.

For the ATH interaction three interpretable effects can be found, i.e. within variable domains 2, 4 and 6. During the experiment only 2 effects emerged (variable domains 2 and 6). Finally, the effect within the AUT interaction, which existed previously within the ego-NPO relation, has disappeared. In this analysis there is now instead an effect within the AUH interaction referring to the ego-pupil and pupil-ego relation. Not both are interpretable, however. Moreover, the AUH interaction within the pupil-NPO relation cannot be shown now.

9.4.3 Post-testing

Starting from the precision and power examination described above, an account will be given below of the differences in the main effects. At the same time it should be kept in mind that we are here discussing differences in differences. In the calculations made the gauge of objectivity used has namely been the differences between the educational experts′ mean assessment and the student teachers′ self-assessments (see Bierschenk, 1972, pp. 211-213).

9.4.3.1 Main effects

Within the ego-ego relation it is the effect in factor U that provides a conclusive basis for interpretation. For lesson 1 the educational experts′ assessment differs by .65 points on the scale from the student teachers′ self-assessment. This gap shrinks noticeably for lesson 2. There the difference is .53. The development is in the same direction as the results obtained during the experiment indicated.

The main effects in factor A are given for all the variable domains in Table 35.

Table 35. Differences in Factor A within variable domains 1-6. The differences from already published analyses (Bierschenk, 1972, s 264) are given in parantheses

Variable domain	Level			
	(a_1)	a_1	(a_2)	a_2
1	.32	.70	.40	.48
2	.27	.67	.03	.05
3	.02	.35	.00	-.06
4	.03	.18	.38	.28
5	.23	.52	.16	.25
6	-.47	.37	-.59	-.61

As can be seen from Table 35, a greater change has taken place in the perception than in the evaluation. Regarding the pupil-NPO relation, it emerges that during the experiment the student teachers' were more positive in their perception than the educational experts. In the student teachers' sixth term, this relation is almost reversed. Otherwise the relations are in this respect unchanged.

9.4.3.2 Interaction effects

Of the interaction effects the ATH interaction within the ego-pupil, pupil-ego and pupil-NPO relations satisfies the criterion $\alpha = .01$ and $g > .70$. The cell means for the differences in the ATH interaction within the ego-pupil relation are given in Table 36.

Table 36. Contrast analysis ATH, level a_1 (Ego-pupil relation)

Order	1	2	3	4
Source	t_2h_1	t_1h_2	t_1h_1	t_2h_2
m	.43	.66	.75**	.82**
t_2h_1		.23	.32	.39
t_1h_2			.09	.16
t_1h_1				.07
t_2h_2				
Scheffé's test Critical value .73				

As can be seen from Table 36, the differences in the "mean differences" are not sufficiently large for us to be able to establish demonstrable deviations.

The result regarding the differences between the student teachers' and educational experts' assessments are given in Table 37.

Table 37. Contrast analysis ATH, level a_2 (Ego-pupil relation)

Order	1	2	3	4
Source	t_1h_1	t_2h_2	t_2h_1	t_1h_2
m	-.19	.02	.08	.11
t_1h_1		.21	.27	.30
t_2h_2			.06	.09
t_2h_1				.03
t_1h_2				
Scheffé's test Critical value .73				

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Table 37 shows that there are no marked differences between the mean differences, and therefore the table will not be discussed in more detail.

The result of the ATH interaction with the pupil-ego relation is presented in Tables 38 and 39.

Table 38. Contrast analysis ATH, level a_1 (Pupil-ego relation)

Order	1	2	3	4
Source	t_1h_1	t_2h_1	t_1h_2	t_2h_2
m	.05	.21	.22	.26
t_1h_1		.16	.17	.21
t_2h_1			.01	.05
t_1h_2				.04
t_2h_2				
Scheffé's test Critical value .98				

As can be seen from Table 38, there are no noticeable differences between the separate influence groups. The result regarding the evaluation is presented in Table 39.

Table 39. Contrast analysis ATH, level a_2 (Pupil-ego relation)

Order	1	2	3	4
Source	t_1h_2	t_2h_1	t_2h_2	t_1h_1
m	-.20	.10	.58	.63
t_1h_2		.30	.78	.83
t_2h_1			.48	.53
t_2h_2				.05
t_1h_1				
Scheffé's test Critical value .98				

Table 39 shows how none of the differences are as large as or larger than the critical value, and therefore the table will not be interpreted. Finally, there is also within the pupil-NPO relation an ATH interaction that satisfies the criterion for post-testing. The contrast analyses are presented in Tables 40 and 41.

Table 40. Contrast analysis ATH, level a_1 (Pupil-NPO relation)

Order	1	2	3	4
Source	t_2h_1	t_1h_2	t_1h_1	t_2h_2
m	-.18	.38	.42	.84
t_2h_1		.56	.60**	1.02**
t_1h_2			.04	.46
t_1h_1				.42
t_2h_2				
Scheffé's test Critical value .59				

Table 40 shows that there are two demonstrable differences in the mean differences between the student teachers' perception during their sixth term and the educational experts' perception during the second term. The student teachers who were given no influence at all during the experiment deviate noticeably in the sixth term from the educational experts' perception. Compared to the other groups, moreover, the difference here is the largest. During the experiment (second term) the same group had deviated least from the experts (-.10). The second significant deviation refers to the student teachers who were given both tutoring and externally mediated self-confrontation via CCTV/VR. This group deviates in the sixth term in the reverse direction and in addition deviates more markedly than during the second term (-.30) from the experts' perception (see Bierschenk, 1972, p. 225). While, when interpreting the results of the experiment, we have not been able to exclude the possibility that such an effect could depend on the experiment being carried out in two stages, it should now be less likely that this circumstance has influenced the student teachers' perception.

The contrasts regarding the evaluation are presented in Table 41.

As can be seen from Table 41, there are no demonstrable differences between the mean differences. A comparison of the cell means in Table 41 with the evaluation given for the observations during the experiment (Bierschenk, 1972, p. 226) shows that the profile is unchanged.

Table 41. Contrast analysis ATH, level a_2 (Pupil-NPO relation)

Order	1	2	3	4
Source	t_2h_2	t_1h_1	t_2h_1	t_1h_2
m	-.75	-.70	-.54	-.44
t_2h_2		.05	-.21	-.31
t_1h_1			-.16	-.26
t_2h_1				-.10
t_1h_2				
Scheffé's test Critical value .59				

9.4.4 Summary of assessment by educational experts and student teachers

In order to study whether and to what extent the teacher training has influenced the student teachers' perception and evaluation of their video-recorded micro-lessons during their sixth term compared to the educational experts' perception and evaluation of the same video-recorded material, an ANOVA was made for the mean differences. The video-recorded micro-lessons are those recorded in connection with the self-confrontation experiment during the student teachers' second term. The expert assessments are also the same ones as those made during the experiment. It was not to be expected that the experimental influence would have any effect two years after the self-confrontation experiment. On the contrary, the general expectation was that the effects found during the experiment would have been erased by all the uncontrolled influence that must have occurred in the period between the second and sixth terms. For these reasons it is surprising that the pattern in the F tests shows a number of effects in factors T, H and the factor combination TH, even if these effects do not then satisfy the criterion $\alpha = .01$, $g > .70$, which was set up for deciding whether or not a more detailed examination was to be made.

In addition a number of effects that had not been found earlier (during the second term) have now appeared and the reverse. Of the interactions studied in the form of a post-testing, however, only the ATH interaction within the pupil-NPO relation showed noticeable differences between the mean differences. A comparison with the contrasts presented in connection with the analysis of the observations from the experiment shows that the student teachers' perception has changed markedly, while the evaluation shows the same pattern as before.

Within the ego-pupil relation there is an interpretable effect within the AUH interplay. This effect has not been found earlier. The contrasts are not presented here, however, since $g < .70$ (see Table 34).

10. ASSESSMENT AND EVALUATION SCHEDULE F III: A STRUCTURE ANALYSIS OF THE STUDENT TEACHERS' ASSESSMENT

In this chapter the relation between two groups of variables will be studied. Canonical correlation analysis is used for this purpose. Using this analysis we can obtain a weighted mean for several criterion variables for a number of predictor variables. The reason for our wishing to examine the relation between two sets of variables by means of a canonical correlation analysis is that single variables need not show any noticeable correlation, even though there may be high intercorrelations between groups of variables. In addition some single, selected correlations say very little or nothing about the general relation between sets of variables.

10.1 Canonical correlation analyses of student teachers' assessments during their second and sixth terms at the school of education

During their sixth term the student teachers were asked to assess once again the video material recorded during the second term. The purpose of a canonical correlation analysis of the second term's assessments (t_2) and those of the sixth term (t_6) is to study whether and to what extent there are structural similarities in the perception and evaluation of the student teachers. The extent to which the student teachers' perception and evaluation contain significant correlated dimensions is examined in Table 42.

As shown in Table 42 there are within the ego-ego relation five canonical components for lesson 1 and six for lesson 2. Within the ego-pupil relation there are on both occasions six components that have become significant. For the ego-NPO relation five canonical components can be shown in both the first and second lesson.

Within the pupil dimension the pupil-ego relation displays two significant canonical correlations in the first lesson and three in the second lesson. The pupil-pupil relation shows three significant correlations at the first lesson and two at the second lesson. Within the NPO-pupil relation there are three canonical components that correlate significantly with each other in the first lesson and four in the second lesson.

The evaluation consistently shows a lower number of significant correlated dimensions. The evaluation of the ego dimension contains for the ego-ego relation four significant canonical correlations in the first lesson and two in the second lesson. Within the ego-pupil relation there are for both lessons four significant correlated dimensions. The ego-NPO relation shows for the first lesson two and for the second lesson three significant canonical components. Within the pupil dimension it can be established that there are consistently for both the first and second lesson two significant correlated dimensions.

Table 42. Number of significant canonical correlations between terms 2 and 6 and redundancy in student teachers´ assessments

Variable domain	Perception ML 1 R_c	 R_{t_2}	 R_{t_6}	 Wilks Λ	 ML 2 R_c	 R_{t_2}	 R_{t_6}	 Wilks Λ	Evaluation ML 1 R_c	 R_{t_2}	 R_{t_6}	 Wilks Λ	 ML 2 R_c	 R_{t_2}	 R_{t_6}	 Wilks Λ
Ego-ego	5	.39	.40	.00	6	.38	.39	.00	4	.29	.29	.00	2	.31	.32	.00
Ego-pupil	6	.35	.35	.00	6	.39	.38	.00	4	.32	.32	.00	4	.34	.34	.00
Ego-NPO	5	.36	.37	.00	5	.30	.32	.03	2	.17	.18	.12	3	.23	.23	.07
Pupil-ego	2	.30	.29	.27	3	.22	.23	.40	2	.14	.13	.55	2	.22	.20	.42
Pupil-pupil	3	.27	.29	.36	2	.31	.33	.35	2	.22	.24	.47	2	.24	.24	.50
Pupil-NPO	3	.18	.19	.49	4	.20	.19	.46	2	.11	.09	.63	2	.10	.11	.64

ML (1, 2): Micro-lesson (1, 2)
R_c: Canonical redundancy
R_{t_2}: Total redundancy, term 2
R_{t_6}: Total redundancy, term 6

Since, as is shown by Table 42, we have access to "redundant variance", i.e. an index for determining how great a part of the variance on the left side's set of variables (t_2) that overlaps with the variance in the right side's set of variables (t_6), we are no longer forced to base our discussion on R_c alone. It functions as a summarizing gauge and is therefore naturally not suitable for a study of which elements in the respective sets of variables contribute most to the maximum correlation for a particular pair of vectors.

By means of Stewart & Love's (1968, pp. 160-163) redundancy index, questions concerning the similarity between two sets of variables can be answered. In addition it is possible to state whether there is any appreciable part of the variance associated with the respective components. On the basis of this index it can later be decided whether the respective R_c should be further examined.

As can be seen from Table 42, the total redundant variance is very similar, i.e. the predictable variance is as large for the student teachers' assessments during term 2 as during term 6. The proportion of the variance that is associated with the individual canonical components is to be seen in Appendix 7. This appendix also contains an account of the canonical loadings. Canonical loadings permit interpretation in the same way as factor analyses are interpreted.

If we wish to make a closer study of the way in which the individual variables have contributed to the maximally correlated components, this can be done with regard to (1) whether there are equally high correlations for a particular variable in the respective sets of variables, i.e. whether the structure overlaps perfectly, (2) the importance of the individual groups of variables irrespective of the agreement between the pairs of vectors. Yet, another step would be to attempt to give these relations a meaningful content.

In order to provide concrete information about the variables on which the student teachers have based their perception and evaluation of the video-recorded lessons, the components have been examined irrespective of whether they are significant or not. Taking the relative proportion of extracted variance as a starting point, the components were examined with regard to the pairs of variables that correlate with the respective component $\geq$ .30. Even in the cases where there is only one pair of variables, this will be described. For an interpretation of the components, however, at least 3 pairs of variables should satisfy the criterion. No interpretation will be made, however, since the components are far too situationally dependent. The variables within the ego-ego relation that appear to have been of importance for student teachers' assessments are described in Table 43. R_t states the proportion of total redundance for the respective component.

Table 43. Student teachers' assessments in second and sixth terms. Ego-ego relation

Perception, ML 2		
Component 2	t_2	t_6
1 Emotional state	.68	.67
R_t	.21	.21
Component 3		
14 Factual knowledge	-.57	-.48
R_t	.14	.10
Component 4		
18 Dialectal accent	.51	.43
16 Use of incomplete sentences	-.39	-.41
3 Patience with pupils	-.31	-.37
R_t	.10	.10
Component 7		
5 Voice variation	.46	.53
6 Clarity of speach	.36	.40
R_t	.07	.07
Component 6		
4 Sense of humor	-.32	-.30
R_t	.07	.03

Perception, ML 2		
Component 2	t_2	t_6
1 Emotional state	.65	.68
2 Manner	.36	.34
R_t	.19	.22
Component 4		
7 Vocal pitch	.40	.49
R_t	.13	.13
Component 3		
15 Use of stereotyped expressions	.44	.35
R_t	.13	.09
Component 6		
14 Factual knowledge	-.33	-.41
R_t	.07	.09

Evaluation, ML 1		
Component 3		
1 Emotional state	.49	.44
R_t	.21	.15
Component 1		
4 Sense of humor	-.66	-.51
R_t	.13	.15
Component 2		
16 Use of incomplete sentences	.45	-.42
13 Fiddling with objects (rings etc.)	.35	.53
R_t	.13	.15
Component 4		
2 Manner	.65	.50
18 Dialectal accent	-.34	.36
R_t	.13	.13

Evaluation, ML 2		
Component 3		
4 Sense of humor	.66	.73
R_t	.16	.18
Component 2		
5 Voice variation	-.30	-.57
14 Factual knowledge	.36	.45
13 Fiddling with objects (rings etc.)	.33	.34
1 Emotional state	-.30	-.37
R_t	.16	.13
Component 1		
2 Manner	.50	.51
7 Vocal pitch	-.40	-.40
R_t	.11	.16
Component 4		
3 Patience with pupils	.46	.45
R_t	.08	.08

As can be seen from Table 43, there are within the ego-ego relation five components on the occasion of lesson 1 and four in lesson 2 in which at least one pair of variables fulfils the criterion. The second canonical component extracts relatively speaking the greatest part of the variance. While in the first lesson the only variable that is of importance is "Emotional state", this is joined in the second lesson by the variable "Performance", although this is of less importance.

The variable "Factual knowledge" appears for both lessons and is then alone also of the greatest importance for the correlation of the variable with components 3 and 6. But this variable consistently correlates negatively with the respective component.

Components 4, 7 and 6 are unique for the student teachers' perception of the first micro-lesson, while components 4 and 3 are unique for lesson 2. The variables indicate that in the different lessons the student teachers have directed their attention at different things. In lesson 1 it is "Language and language differentiation", "Patience with pupils" and "Sense of humour", while in lesson 2 their attention appears to be directed at "Vocal pitch", and "Use of stereotyped expressions".

When the evaluation is examined, the component structure changes even more markedly. If we first consider what is common to lessons 1 and 2, we find that the evaluation of "Sense of humour" in the first lesson correlates negatively, while in the second lesson it correlates positively and has increased in importance. There the comparability ends. "Emotional state" decreases in importance in lesson 2 and in addition correlates negatively with component 2, as does "Voice variation". On the other hand "Factual knowledge" and "Fiddling with objects (rings etc.)" correlate positively. For lesson 1 component 2 contains "Use of incomplete sentences", which correlates positively with this component in the second term but negatively in the sixth term, which suggests re-evaluation. In the evaluation of the sixth term "Fiddling with objects" has greater importance than this variable has had during the second term. During lesson 1 "Manner" and "Dialectal accent" are included in the same component, but this changes in lesson 2 to contain "Manner" and "Vocal pitch". Finally, in lesson 2 the evaluation of "Patience with pupils" is of such importance that it is responsible for the correlation in component 4.

To sum up it can be said that content-wise the student teachers' perception and evaluation have led to very different canonical components that in addition change from lesson 1 to lesson 2. A cautious interpretation could be that perception and evaluation involve the emotional state and the way in which it can influence or can be seen in speech and behaviour and in patience with the pupils.

The variables that have been important for the student teachers´ perception concerning the ego-pupil relation are presented in Table 44 and the variables important for evaluation are given in Table 45. As is shown in Table 44 a noticeable change in perception takes place between lessons 1 and 2. The perception becomes more differentiated. All the variables that have been important in lesson 1, with the exception of variable No. 32, recur in lesson 2. In lesson 2, however, a further 7 new variables turn up.

Table 44. The student teachers´ perception in the second and sixth terms. Ego-pupil relation

Perception, ML 1			Perception, ML 2		
Component 1	t_2	t_6	Component 1	t_2	t_6
27 Non-verbal contact (pointing)	.41	.31	29 Address without eye-contact	.40	.33
R_t	.23	.29	35 Getting the pupils to work	-.41	-.45
Component 2			R_t	.28	.26
23 Explanations and descriptions	.45	.31	Component 2		
R_t	.17	.14	26 Non-verbal contact (nodding)	-.31	-.51
Component 3			49 Pupils´ irrelevant occupations	.38	.36
25 Helping pupils	.54	.53	R_t	.21	.21
R_t	.09	.09	Component 3		
Component 4			23 Explanations and descriptions	.49	.57
32 Ability to maintain own authority	-.34	-.34	25 Helping pupils	.46	.35
R_t	.09	.09	39 Confusion in class	.36	.35
Component 5			R_t	.08	.05
38 Contact between student teacher and pupil	.44	.57	Component 4		
R_t	.09	.09	27 Non-verbal contact (pointing)	-.30	-.31
			R_t	.10	.08
			Component 5		
			41 Pupils´ concentration	.39	.34
			R_t	.08	.11
			Component 6		
			38 Contact between student teacher and pupil	.55	.47
			45 Questioning technique: fill-in questions	.35	.47
			R_t	.05	.05

Variables of importance for the student teachers' perception during lesson 1 are "Making contact" (components 1 and 5), "Explanations and descriptions" and "Helping pupils" (components 2 and 3) and "Ability to maintain own authority" (component 4). These components reappear in lesson 2 with the exception of the student teachers' "Ability to maintain own authority". Instead more attention is to be paid to "Pupils' concentration".

As can be seen from Table 45, student teachers' "Making contact", and "Pupils' concentration and ability to infer" are important for the evaluation in lesson 1. The evaluation of lesson 2 is also based on "Making non-verbal contact" by pointing at a pupil becoming important in addition to just nodding. Instead of "Pupils' ability to infer", component 2, namely "Getting the pupils to work", has become important for the evaluation. In addition in lesson 2 student teachers' "Ability to maintain own authority" (component 6) has a certain amount of importance.

Table 45. Student teachers' evaluation in the second and sixth terms. Ego-pupil relation

Evaluation, ML 1 Component 2	t_2	t_6
26 Non-verbal contact (nodding)	.31	.46
R_t	.16	.19
Component 5		
43 Pupils' ability to infer	-.32	.38
R_t	.09	.16
Component 6		
38 Contact between student teacher and pupil	.35	.51
39 Confusion in class	.34	.38
41 Pupils' concentration	.48	.30
R_t	.09	.13
Component 4		
29 Address without eye-contact	.35	.65
31 Interruption of pupil's speech	-.32	-.40
R_t	.09	.09

Evaluation, ML 2 Component 1	t_2	t_6
27 Non-verbal contact (pointing)	.45	.38
41 Pupils' concentration	-.42	.30
R_t	.18	.21
Component 3		
26 Non-verbal contact (nodding)	.72	.70
R_t		
Component 2		
35 Getting the pupils to work	.58	.54
R_t	.12	.09
Component 6		
39 Confusion in class	.61	.32
32 Ability to maintain own authority	-.38	-.39
31 Interruption of pupil's speech	-.30	-.43
R_t	.09	.09

The variables that have been important for the student teachers' assessments of the ego-NPO relation are presented in Table 46.

Table 46 shows that the student teachers' perception of the ego-NPO relation has changed from lesson 1 to lesson 2. The common factor for both occasions is that the student teachers' perception is based on "General planning of the lesson" (component 1), "Use of blackboard" and the "Degree of TV studio's effect on teaching" (component 2) plus "Detailed planning of the lesson" (component 4). In lesson 2, however, a change takes place in that component 1 is responsible for both the general and detailed planning. The variable "Communication of hard facts in the teaching" is excluded from component 2. Instead this component gets a more clear-cut teaching method content. "Linking up with pupils' initial knowledge" does not recur in lesson 2. Instead component 5 is introduced, namely "Assessment of own teaching" and component 4 "Presentation of subject".

The student teachers' evaluation also changes structurally from lesson 1 to lesson 2. But even though the content of the components changes, the number of variables occurring in lessons 1 and 2 respectively is more similar than is the case for the student teachers' perception. Three of the nine variables of importance for the evaluation in lesson 2 do not occur during the first lesson.

It is primarily the "Degree of TV studio's effect on teaching" and "Teaching strategy" (components 4, 5), "Assessment of own teaching" and "Presentation of subject" (component 3), plus "Use of blackboard" and "Digressions in presenting the subject" (component 6) which are of importance for the student teachers' evaluation.

Table 46. Student teachers´ assessments in second and sixth terms. Ego-NPO relation

Perception, ML 1	t_2	t_6
Component 1		
52 General planning of the lesson	-.59	.40
R_t	.31	.41
Component 2		
55 Use of blackboard	.51	.70
51 Degree of TV studio´s effect on teaching	.42	.35
58 Communication of hard facts in the teaching	-.31	-.44
R_t	.28	.16
Component 4		
53 Detailed planning of the lesson	.69	.74
59 Linking up with pupil´s initial knowledge	-.38	.44
R_t	.14	.16

Perception, ML 2	t_2	t_6
Component 1		
52 General planning of the lesson	.61	.68
53 Detailed planning of the lesson	-.46	-.37
R_t	.23	.22
Component 2		
51 Degree of TV studio´s effect on teaching	.45	.51
54 Use of teaching aids	.34	.46
55 Use of blackboard	-.62	-.48
56 Arrangement on blackboard	-.44	-.48
R_t	.23	.19
Component 5		
50 Assessment of own teaching	.51	.43
R_t	.13	.15
Component 4		
57 Presentation of subject	-.32	.30
R_t	.01	.09

Evaluation, ML 1		
Component 1		
57 Presentation of subject	.87	.59
60 Digressions in presentation of subject	-.38	.35
R_t	.24	.28
Component 2		
53 Detailed planning of the lesson	-.82	-.35
R_t	.24	.22
Component 3		
55 Use of blackboard	.48	.56
R_t	.13	.11
Component 4		
50 Assessment of own teaching	.58	.61
54 Use of teaching aids	.51	.37
R_t	.08	.06

Evaluation, ML 2		
Component 4		
51 Degree of TV studio´s effect on teaching	.59	.69
52 General planning of the lesson	.41	.34
R_t	.09	.13
Component 3		
50 Assessment of own teaching	.54	.66
57 Presentation of subject	.59	.50
R_t	.09	.09
Component 5		
53 Detailed planning of the lesson	-.53	-.40
54 Use of teaching aids	-.32	-.32
R_t	.09	.09
Component 6		
55 Use of blackboard	.39	.48
60 Digressions in presentation of subject	.35	.48
58 Communication of hard facts in the teaching	.42	.40
R_t	.09	.09

The variables that have been important for the student teachers' perception and evaluation of the pupil-ego relation are presented in Table 47.

Table 47. Student teachers' assessments in second and sixth terms. Pupil-ego relation

Perception, ML 1 Component 2	t_2	t_6	Perception, ML 2 Component 1	t_2	t_6
68 Contradiction by pupils	.74	.66	65 Obeying student teacher's instructions	.83	.66
71 Pupils give answers other than those intended	.60	.69	71 Pupils give answers other than those intended	.47	.72
R_t	.50	.52	R_t	.50	.48
Component 3			Component 2		
65 Obeying student teacher's instructions	.97	.93	69 Pupils ask questions concerning the subject	-.57	.31
R_t	.07	.24	68 Contradiction by pupils	-.31	-.46
			R_t	.36	.35
Evaluation, ML 1 Component 1			Evaluation, ML 2 Component 1		
71 Pupils give answers other than those intended	.73	.89	71 Pupils give answers other than those intended	.74	.88
68 Contradiction by pupils	.52	-.37	65 Obeying student teacher's instructions	.38	.38
R_t	.64	.62	R_t	.54	.55
Component 2			Component 2		
65 Obeying student teacher's instructions	.84	.90	69 Pupils ask questions concerning the subject	.54	.34
69 Pupils ask questions concerning the subject	-.48	-.38	R_t	.36	.35
R_t	.21	.31			

As can be seen from Table 47, it is above all component 2 and component 1 that are important to the student teachers' perception. While the perception in lesson 1 concerns "Contradictions by pupils" and the extent to which "Pupils give answers other than those intended" (which reflects a certain amount of uncertainty), this is changed during lesson 2 to concern "Obeying student teachers' instructions", which indicates more assured behaviour. This seems to be even more marked in a comparison of the content of components 3 and 2, where during lesson 1 "Obeying student teachers' instructions" is responsible for the variance while factor 2 now summarizes the observation "Pupils ask questions concerning the subject" and "Contradictions by pupils", which suggests that a more objective view is being taken of contradictions.

The evaluation of the pupil-ego relation appears on both occasions to be based primarily on "Pupils give answers other than those intended", i. e. the extent to which the student teachers´ expectations of the pupils´ answers are fulfilled or not. "Obeying student teachers´ instructions" is the next most important in the evaluation of the first lesson, while the evaluation in lesson 2 is based secondly on the extent to which "Pupils ask questions concerning the subject".

The variables that have been important for the student teachers´ perception and evaluation of the pupil-pupil relation are presented in Table 48.

Table 48. Student teachers´ assessments in second and sixth terms. Pupil-pupil relation

Perception, ML 1			Perception, ML 2		
Component 1	t_2	t_6	Component 1	t_2	t_6
72 Pupils interrupt each other	.96	.96	72 Pupils interrupt each other	.97	.95
R_t	.56	.62	R_t	.81	.85
Component 2			Component 2		
73 Talk to each other about things outside the subject	.71	.69	73 Talk to each other about things outside the subject	-.61	-.48
75 Discuss the subject	.69	.51	75 Discuss the subject	.41	.40
R_t	.37	.31	R_t	.16	.12
Evaluation, ML 1			Evaluation, ML 2		
Component 1			Component 1		
72 Pupils interrupt each other	.44	.72	72 Pupils interrupt each other	-.76	-.62
75 Discuss the subject	.64	.42	75 Discuss the subject	-.50	.77
R_t	.64	.83	R_t	.88	.88

As is shown in Table 48, there are two components in the student teachers´ pupil-pupil relation. "Pupils interrupt each other" is the variable that is of the greatest importance in both lessons. The other component contains on both occasions two variables. While in the first lesson both variable 73 and variable 75 correlate positively with this component, in the second lesson the student teachers appear to differentiate between "Talk outside the subject" and "Discuss the subject", since variable 73 correlates negatively with this component.

For the evaluation it is variables 72 and 75 that are of the greatest importance on both occasions. In the first lesson both "Pupils interrupt each other" and "Discuss the subject" correlate positively with the component. In the second lesson both variables correlate negatively with the first component, while a change appears to have taken place in the sixth term, i. e. "Pupils interrupt each other" is evaluated differently to

"Discuss the subject".

The variables that are important for the student teachers' perception and evaluation of the pupil-NPO relation are given in Table 49.

Table 49. Student teachers' assessments in the second and sixth terms. Pupil-NPO relation

Perception, ML 1 Component 1	t_2	t_6	Perception, ML 2 Component 2	t_2	t_6
79 Effect of TV studio on pupils	.67	.70	77 Presentation of subject	.74	.61
76 Pupils' interest	.45	.66	78 Pupils' reaction to the subject	.47	.76
R_t	.55	.63	R_t	.28	.26
Evaluation, ML 1 Component 1			Evaluation, ML 2 Component 2		
79 Effect of TV studio on pupils	.67	.70	77 Presentation of subject	.90	.87
76 Pupils' interest	.45	.66	76 Pupils' interest	.37	.47
R_t	.50	.56	R_t	.50	.55

As is shown in Table 49, "Effect of TV studio on pupils" is the variable that is of the greatest importance for the student teachers' perception in lesson 1. The second variable is "Pupils' interest". In lesson 2 the perception has changed. Now it is the student teachers' "Presentation of subject" and "Pupils' reaction to the subject" that are important.

During the first lesson "Effect of TV studio on pupils" and "Pupils' interest" are important for the student teachers' evaluation. In lesson 2, however, the evaluation is based on "Presentation of subject" and "Pupils' interest".

To sum up, the student teachers' perception and evaluation in the second and sixth terms within all the variable domains show changes from lesson 1 to lesson 2, not only in the size of the correlations but also in the variables that have been most important to the perception and evaluation.

10.2 Canonical correlation analyses of educational experts' assessments during the second term and student teachers' assessments during the sixth term

The self-confrontation experiment included assessment of the video-recorded material by educational experts. Since the student teachers and the educational experts both made their assessments by means of the F III schedule, it was possible to study whether there were any structural similarities between their assessments. The analysis was carried out by means of canonical correlation analyses. The results of the analyses have been presented in Bierschenk (1972 a, Chap. 28). Briefly it can be said that within the perception structure there were significant correlated components in lesson 1, with the exception of the pupil-NPO relation. In lesson 2, however, only three components within the ego-ego, pupil-ego and pupil-pupil relations were significantly correlated. Within the evaluation structure the criterion of significance was satisfied by only one component (within the ego-ego relation) in lesson 1 and by two components (within the ego-pupil and pupil-NPO relations) in lesson 2.

The results of the canonical correlation analyses in the observation data of the experiment imply that there are admittedly some significant correlated components, but that these do not appear to be very stable. The canonical correlation analyses presented in 10.1 concerned an examination of the student teachers´ assessments during the second term in relation to the assessments made two years later. In this chapter a study will be made of the relation between the assessments made by the educational experts during the experiment and the assessments made by the student teachers two years later. This analysis was made for the purpose of studying whether the teacher training has influenced the student teachers´structure of perception and evaluation in such a way that there is at the end of the training greater structural similarity between the student teachers and the experts than had been the case during the experiment. The canonical correlation analyses presented below are based on student teachers´ assessments of the video-material recorded during the second term. There has been no new assessment by the educational experts.

A summary of the results of the canonical correlation analyses is presented in Table 50.

It can be seen from Table 50 that regarding the perception in both the first and second lessons at least three components are needed in the ego-ego relation to reproduce the structure in the assessments of the student teachers and educational experts. Within the ego-pupil relation two components are necessary and within the ego-NPO relation the first canonical component is sufficient for reproducing the structure of the perception.

Within the pupil dimension, with the exception of the pupil-ego relation in the second lesson, the first canonical component is enough to reproduce the structure of the sets of variables. With regard to evaluation, no common dimension can be demonstrated in any of the subject-object relations.

Table 50 also shows the part of the variance that is associated with the respective sets of variables. On the basis of the assessments made by means of Stewart & Love´s index (1968, p. 160), a decision can be made as to whether the R_c in question should be studied in more detail. By using

Table 50. Number of significant canonical correlations between terms 2 and 6 and redundancy in student teachers´ and educational experts´ assessments

Variable domain	Perception								Evaluation							
	ML 1			Wilks	ML 2			Wilks	ML 1			Wilks	ML 2			Wilks
	R_c	R_{bt}	R_{lt}	Λ	R_c	R_{bt}	R_{lt}	Λ	R_c	R_{bt}	R_{lt}	Λ	R_c	R_{bt}	R_{lt}	Λ
Ego-ego	3	.30	.26	.00	3	.26	.29	.00	0	.24	.19	.01	0	.19	.20	.01
Ego-pupil	2	.33	.28	.00	2	.33	.32	.00	0	.27	.23	.00	0	.25	.23	.00
Ego-NPO	1	.21	.22	.06	1	.18	.16	.15	0	.13	.12	.18	0	.13	.13	.19
Pupil-ego	1	.12	.10	.72	2	.19	.14	.88	0	.04	.04	.88	0	.05	.06	.73
Pupil-pupil	1	.31	.28	.47	1	.29	.24	.52	0	.05	.03	.83	0	.08	.06	.77
Pupil-NPO	1	.08	.08	.72	1	.17	.14	.63	0	.03	.03	.89	0	.07	.06	.76

ML (1, 2): Micro-lesson (1, 2)

R_c: Canonical correlation

R_{bt}: Total redundancy, educational experts

R_{lt}: Total redundancy, student teachers this index we can study which components explain the greatest part of the variance without their having necessarily to be significant. As shown in Table 50, within the ego dimension about 30% of the variance in the perception has been extracted.

Within the pupil dimension, however, a corresponding part (about 30%) of the variance concerning perception has been extracted only within the pupil-pupil relation.

By means of the redundancy index, questions can be answered concerning the similarity between the educational experts' and student teachers' perception and evaluation of the assessments made during the sixth term. But if one wishes to say more than that there are linearly combined variables with demonstrable agreement, it is necessary to examine the canonical components described in Appendix 7, Tables 23-47. Only by studying the canonical components is it possible to describe and interpret latent components, irrespective of whether they are significant.

With regard to the agreement between the assessments of the experts and the student teachers, it can be established that in the sixth term the perception shows more demonstrable correlated canonical components than had been the case during the student teachers' second term. This indicates a more differentiated perception than during the second term. While during the second term one component sufficed within the ego-ego relation to explain an essential part of the variance, three components are needed for the same relation in the sixth term. Within the ego-pupil relation the canonical correlation analysis during the second term (see Table 51) showed that in the first lesson one, but in the second lesson two canonical components are necessary to explain the structure of the perception.

The differences between the number of significant canonical correlations presented in Bierschenk (1972) and the number of significant canonical correlations presented in Table 51 are a result of the use in the latter case of Cooley & Cohen's (1971) CANON programme and the formula $z = (2\chi^2)^{\frac{1}{2}} - (2\,df-1)^{\frac{1}{2}}/1$ instead of BMD 06 and $(\chi^2 - df)/(2df)^{\frac{1}{2}}$

In the sixth term both lessons show two canonical components, which indicates greater stability and a somewhat more differentiated perception. In the other relations, with the exception of the pupil-ego relation, one component has proved sufficient in the sixth term for both lessons. During the second term there was for the perception of the ego-NPO, pupil-ego and pupil-pupil relations one significant canonical correlation in the first lesson which, apart from in the pupil-pupil relation, has not appeared in lesson 2. This indicates greater stability in the student teachers' perception in the sixth term.

With regard to the evaluation, it proved during the second term that the significant correlations could not in a single case be demonstrated for both lessons, which suggests instability. In the sixth term there is no significant correlated canonical component at all.

The number of significant canonical components in the individual analyses are presented in summary in Table 51.

Table 51. Summary of the number of significant components in the individual canonical correlation analyses

Aspect and Micro-lesson	Variable domain					
	1	2	3	4	5	6
Student teachers' assessments during second and sixth term						
Perception						
Micro-lesson 1	5	6	5	2	3	3
Micro-lesson 2	6	6	5	3	2	4
Evaluation						
Micro-lesson 1	4	4	2	2	2	2
Micro-lesson 2	2	4	3	2	2	2
Student teachers' and educational experts' assessments during second term						
Perception						
Micro-lesson 1	1	1	1	1	1	0
Micro-lesson 2	1	2	0	0	1	0
Evaluation						
Micro-lesson 1	1	0	0	0	0	0
Micro-lesson 2	0	0	0	0	0	1
Student teachers' assessments during sixth term and educational experts' assessments during second term						
Perception						
Micro-lesson 1	3	2	1	1	1	1
Micro-lesson 2	3	2	1	2	1	1
Evaluation						
Micro-lesson 1	0	0	0	0	0	0
Micro-lesson 2	0	0	0	0	0	0

Table 52. Pedagogical experts' and student teachers' perception. Ego-ego relation

Perception, ML 1			Perception, ML 2		
Component 1	b	l	Component 2	b	l
12 Use of gestures	.64	.52	5 Voice variation	.43	.68
2 Manner	-.57	-.61	7 Vocal pitch	.57	.40
5 Voice variation	-.38	-.55	2 Manner	.49	.49
18 Dialectal accent	-.52	-.30	20 Mental blocks (black outs)	.37	.38
20 Mental blocks (black outs)	-.37	-.39	12 Use of gestures	-.65	-.48
R_t	.33	.23	R_t	.23	.17
Component 2			Component 1		
1 Emotional state	.53	.30	13 Fiddling with objects (rings etc)	.57	.63
7 Vocal pitch	.42	.44	R_t	.15	.17
16 Use of incomplete sentences	-.34	-.38	Component 4		
R_t	.20	.15	18 Dialectal accent	.37	.45
Component 4			22 Use of rhetorical questions	-.40	-.39
19 Use of difficult concepts without explanations	-.39	-.35	R_t	.12	.10
R_t	.06	.12	Component 5		
Component 5			6 Clarity of speech	.37	.59
21 Legibility of handwriting on blackboard	.47	.58	14 Factual knowledge	-.43	.41
R_t	.06	.08	R_t	.04	.17
Component 3					
13 Fiddling with objects (rings etc)	.44	.48			
22 Use of rhethorical questions	.32	.34			
R_t	.03	.08			

To sum up, there are within all the variable domains demonstrable canonical correlations between the student teachers' assessments during the second and sixth terms of their teacher training. As far as the demonstrable canonical correlations between the assessments of the educational experts and the student teachers during the second term are concerned, it is only for perception that there is a noticeable common structure in both lessons 1 and 2. It is primarily the structure of perception in the ego-ego, pupil-ego and pupil-pupil relations that are stable. In the evaluation no significant canonical component can be demonstrated that is demonstrable in both lessons.

The student teachers' assessments during the sixth term and the educational experts' assessments during the second term show a markedly greater similarity with regard to the structure of perception, while no canonical component can be demonstrated any longer in the evaluation. On the basis of the results reported here we can establish that the structure of the perception of educational experts and student teachers contains a number of demonstrably correlated components. In addition the reported results show greater stability than had been the case in the student teachers´ second term. Finally the results also suggest a greater differentiation in that two or more components are needed for an adequate representation of the perception structure in relations 1, 2 and 4. By examining the canonical components a number of components will be described below, irrespective of whether they are significant or not. In the analysis the same criteria will be applied as in Chapter 10.1.

As can be seen from Table 52, there are within the ego-ego relation in the first lesson five components, in which at least one variable correlates $\geq$ 30 with the respective component. The first factor is responsible in lesson 1 for the relatively greater part of the variance. The negative correlations indicate uncertainty and tension, while "Use of gestures" appears to have occurred very little. This component recurs, somewhat changes, in lesson 2 as factor 2. The positive values suggest that the perception of both student teachers and experts agree that the uncertainty and tension have decreased and that the use of gestures has increased. In lesson 2 "Dialectal accent" has gone (this variable returns in factor 4) and been replaced by "Vocal pitch", which in lesson 1 occurred together with "Emotional state" and "Use of incomplete sentences". This component is not to be found in the second lesson. Nor do components 4 and 5, recur in the second lesson. "Fiddling with objects" recurs in lesson 2 in component 1, while "Use of rhetorical questions" and "Dialectal accent" are in lesson 2 to be found in component 4. "Clarity of speech" and "Factual knowledge" are two variables that have not become important until lesson 2.

As in the analysis of the relation between the student teachers´ perception of the video-recorded material in the second and sixth terms, a change has taken place in the structure of perception. But there appears to be rather greater stability, at least in the component responsible for the greater part of the explicable variance. In addition a comparison of Tables 43 and 52 shows that there are considerable differences with regard to the variables that are important for the perception.

The variables that are important for the experts´ and student teachers´ evaluation are presented in Table 53. This table shows how the evaluation is in lesson 1 based on 5 variables that account for 4 components. The student teachers´ "Patience with pupils", "Posture", "Dialectal accent", "Use of incomplete sentences" and "Clarity of speech" are important for the evaluation. None of these variables is to be found in the evaluation of lesson 2. There it is instead the student teachers´ "Emotional state" and "Manner" that have become important. If this result is compared to what has emerged from Table 43, marked differences appear in the evaluation also. In lesson 1 only variable 16 occurs, while in lesson 2 a further six occur in addition to variables 1 and 2.

Table 53. Pedagogical experts' and student teachers' evaluation. Ego-ego relation

Evaluation, ML 1			Evaluation, ML 2		
Component 2	b	l	Component 1	b	l
3 Patience with pupils	-.66	-.32	1 Emotional state	.52	.52
R_t	.21	.11	R_t	.16	.15
Component 1			Component 5		
10 Posture	.34	.57	2 Manner	.30	.31
R_t	.13	.16	R_t	.16	.10
Component 3					
18 Dialectal accent	-.47	-.36			
R_t	.17	.11			
Component 5					
16 Use of incomplete sentences	.37	.30			
6 Clarity of speech	-.33	-.30			
R_t	.08	.11			

The variables that have formed the basis for the experts' and student teachers' assessments of the ego-pupil relation are presented in Table 54. Table 54 shows how there are two components in lesson 1. The first component appears to be an "order and concentration component", while the second component concerns "Non-verbal contacts". In the second lesson a re-structurization has taken place. There is only one independent component expressing "Student teacher's contact with pupils" and "Getting the pupils to work".

Variables of importance for the evaluation are in the first lesson divided into two components. The first component expresses the student teacher's "Interruption of pupil's speech", while the second component concerns "Pupils' concentration". In lesson 2, three independent components are needed. The first expresses the student teachers' communicative behaviour, the second component order and the third the student teachers' ability to explain and describe.

A comparison between Tables 54 and 44 shows that in the perception of lesson 1 there is only one variable (27) that is common to both. In lesson 2 six components are needed for the student teachers' perception (Table 44), while for the student teachers' and educational experts' perception one component is enough. In addition there are three common variables. Table 55 presents the assessments for the ego-NPO relation.

Table 54. Pedagogical experts' and student teachers' assessment. Ego-pupil relation

Perception, ML 1		
Component 1	b	l
39 Confusion in class	.81	.74
41 Pupils' concentration	.32	.58
49 Pupils' irrelevant occupations	-.76	-.42
R_t	.30	.11
Component 3		
27 Non-verbal contact (pointing)	.66	.63
R_t	.12	.11

Perception, ML 2		
Component 1	b	l
27 Non-verbal contact (pointing)	.63	.62
26 Non-verbal contact (nodding)	.35	.47
35 Getting the pupils to work	-.46	-.30
42 Independent work (pupils)	-.55	-.34
38 Contact between student teacher and pupil	-.69	-.46
R_t	.27	.16

Evaluation, ML 1		
Component 1		
31 Interruption of pupil's speech	-.47	-.43
R_t	.15	.13
Component 4		
49 Pupils' irrelevant occupations	.36	-.34
41 Pupils' concentration	.33	-.33
R_t	.07	.13

Evaluation, ML 2		
Component 1		
31 Interruption of pupil's speech	.59	.67
26 Non-verbal contact (nodding)	-.34	-.51
R_t	.12	.17
Component 2		
39 Confusion in class	.41	.61
49 Pupils' irrelevant occupations	-.34	-.35
R_t	.16	.09
Component 5		
23 Explanations and descriptions	.31	.31
R_t	.12	.13

Table 55. Pedagogical experts' and student teachers' assessment Ego-IPO relation

Perception, ML 1			Perception, ML 2		
Component 1	b	l	Component 1	b	l
55 Use of blackboard	.96	.96	55 Use of blackboard	.96	.85
R_t	.48	.55	56 Arrangement on blackboard	-.41	-.38
Component 4			R_t	.39	.32
50 Assessment of own teaching	.72	.68	Component 2		
57 Presentation of subject	.68	.55	54 Use of teaching aids	.47	.56
59 Linking up with pupils' initial knowledge	.80	.40	50 Assessment of own teaching	-.44	-.41
51 Degree of TV studio's effect on teaching	.39	.31	59 Linking up with pupils' initial knowledge	-.54	-.48
R_t	.24	.23	R_t	.17	.25
Evaluation, ML 1			Evaluation, ML 2		
Component 3			Component 2		
54 Use of teaching aids	.53	.55	54 Use of teaching aids	.67	.87
59 Linking up with pupils' initial knowledge	.40	.45	57 Presentation of subject	-.31	.35
R_t	.15	.25	R_t	.15	.31
Component 4					
53 Detailed planning of the lesson	.38	.51			
56 Arrangement on blackboard	-.62	-.43			
R_t	.23	.17			

As can be seen from Table 55, there are two independent components in the perception for lessons 1 and 2. In the first lesson the student teachers' "Use of blackboard" is responsible for a large part of the variance. The other component concerns "Assessment of own teaching" with regard to "Presentation of subject" and "Linking up with pupils' initial knowledge" plus the degree to which this has been influenced by the TV studio. In lesson 2 it is "Use of blackboard" and "Arrangement on blackboard" (component 1) which are the primary basis for the perception. The second component expresses that the perception concerns "Assessment of own teaching" in relation to "Use of teaching aids" and "Linking up with pupils' initial knowledge". Thus, there has been a shift towards more concrete items in the teaching.

The evaluation, on the other hand, is based in lesson 1 on "Use of teaching aids" and "Linking up with pupils' initial knowledge" (component 3) plus "Detailed planning of the lesson" and "Arrangement on blackboard". This changes from lesson 1 to lesson 2. During lesson 2 the evaluation is based on "Use of teaching aids" and "Presentation of subject", thus concerning the concretion of the subject.

A comparison between Tables 55 and 46 shows that there are also large structural differences within the ego-NPO relation. As far as the perception is concerned, only three common variables occur in lesson 1, while the evaluation contains no more than two. In lesson 2 there are three common variables in the perception and two in the evaluation.

The variables on which the educational experts´ and student teachers´ perception and evaluation of the pupil-ego relation are based are presented in Table 56.

Table 56. Educational experts´ and student teachers´ assessment. Pupil-ego relation

Perception, ML 1 Component 1	b	l	Perception, ML 2 Component 1	b	l
68 Contradiction by pupils	.77	.88	65 Obeying student teachers´ instructions	.78	.93
65 Obeying student teachers´ instructions	.49	.30	68 Contradiction by pupils	.94	.59
71 Pupils give answers other than those intended	.38	.36	71 Pupils give answers other than those intended	.79	.35
69 Pupils ask questions concerning the subject	-.96	-.76	69 Pupils ask questions concerning the subject	-.49	-.34
R_t	1.00	.90	R_t	.84	.71

Evaluation, ML 1 Component 1			Evaluation, ML 2 Component 1		
68 Contradiction by pupils	.59	.95	68 Contradiction by pupils	.64	.94
65 Obeying student teachers´ instructions	.53	.38	65 Obeying student teachers instructions	.55	.48
71 Pupils give answers other than those intended	-.68	-.63	R_t	.50	.67
R_t	.75	.75	Component 2		
			71 Pupils give answers other than those intended	.87	.94
			R_t	.50	.67

As Table 56 shows, there is in both lessons one component which is in addition composed of the same variables from one lesson to the other. This dimension expresses the pupils´ contradictions and obedience plus the pupils´ questions concerning the subject. This variable correlates negatively, however, with the component. The evaluation of the pupil-ego relation is also based mainly on the pupils´ contradictions and obedience. There is a change in the evaluation, however. While in the first lesson variable 71 is to be found in the same group of variables, it is included in another component in lesson 2. If Tables 56 and 47 are compared, clear structural differences emerge between the two analyses. Thus among other things different numbers of components are needed.

Table 57 presents the educational experts' and student teachers' assessments of the pupil-pupil relation.

Table 57. Educational experts' and student teachers' assessment. Pupil-pupil relation

Perception, ML 1			Perception, ML 2		
Component 1	b	l	Component 1	b	l
72 Pupils interrupt each other	.87	.89	72 Pupils interrupt each other	.92	.96
74 Play together	.93	.79	74 Play togehter	.91	.83
73 Talk to each other about things outside the subject	.56	.71	73 Talk to each other about things outside the subject	.56	.71
75 Discuss the subject	-.78	-.61	R_t	.93	.92
R_t	.94	.93			
Evaluation, ML 1			**Evaluation, ML 2**		
Component 2			Component 2		
74 Play together	-.66	.49	73 Talk to each other about things outside the subject	.71	.94
R_t	.60	.67	72 Pupils interrupt each other	-.66	-.35
Component 1			74 Play together	-.88	-.55
73 Talk to each other about things outside the subject	-.39	.70	R_t	.63	.67
75 Discuss the subject	-.73	-.38			
R_t	.60	.67			

Table 57 shows that the variance in the perception can be essentially explained by means of a single component, which expresses the discipline in the pupils' behaviour. In the first lesson, discussing the subject belongs to this factor but it does not reappear in the second lesson.

The evaluation consists of two components in lesson 1. But these form one component in lesson 2, although the variable "Discusses the subject" has gone. A comparison of Tables 57 and 48 shows that in the pupil-pupil relation too there are different structures with different implications, although within this variable domain there are only four variables than can be combined with each other.

The variables on which the experts' and student teachers' perception and evaluation of the pupil-NPO relation are based are presented in Table 58.

The table shows that there are two components in lesson 1. The first concerns "Presentation of subject", while the other expresses "Pupils' reaction to the subject" and "Pupils' interest". In lesson 2 the perception has changed. "Presentation of subject" is no longer important.

Table 58. Educational experts´ and student teachers´ assessment. Pupil-NPO relation

Perception, ML 1			Perception, ML 2		
Component 2	b	l	Component 1	b	l
77 Presentation of subject	.94	.98	78 Pupils´ reaction to the subject	.94	.82
R_t	.75	.50	76 Pupils´ interest	.79	.85
Component 1			R_t	.94	.79
78 Pupils´ reaction to the subject	.54	.45			
76 Pupils´ interest	.35	.36			
R_t	.25	.50			
Evaluation, ML 1			**Evaluation, ML 2**		
Component 1			Component 1		
77 Presentation of subject	-.89	.36	77 Presentation of subject	.72	.35
79 Effect of TV studio on pupils	-.47	.67	78 Pupils´ reaction to the subject	.33	.77
R_t	.67	.33	R_t	.43	.50

In lesson 1 the evaluation is based on "Presentation of subject" and "Effect of TV studio on pupils". But the evaluation is also re-structured. In lesson 2 "Presentation of subject" and "Pupils´ reaction to the subject" are also important. If Tables 58 and 49 are compared, it can be seen that within the pupil-NPO relation too the components of the two analyses are composed differently.

To sum up, the detailed examination of the student teachers´ perception and evaluation (analysis 1) of the video-material recorded during a self-confrontation experiment in their second and sixth terms shows that, despite a number of significant correlated canonical components, there are large structural differences between lessons 1 and 2. The size of the "canonical loadings" also varies strongly. If in addition the perception and evaluation of the educational experts and the student teachers (analysis 2) are compared to analysis 1, large structural disparities become apparent. But it should also be mentioned that analysis 2 has shown a more consistent structure, resulting among other things in its being easier to describe and interpret.

11. IDENTIFICATION AND SELF-ASSESSMENT SCHEDULE F II: AN ANALYSIS OF LEVELS IN STUDENT TEACHERS' ASSESSMENTS SIX WEEKS AND TWO YEARS AFTER AN EXPERIMENT

Chapter 7 described the way in which two experiment groups answered the statements defining the identification and self-evaluation of the variable domains in schedule F II. Schedule F II was administered to all the student teachers in a re-analysis of the experiment's video-recorded micro-lessons for the purpose of studying the student teachers' identification experiences and self-evaluation six weeks and two years after the completion of the experiment. The design of the evaluation carried out by analysis of variance is presented in Table 59.

Table 59. Analysis of variance design of the repeated measurement of student teachers' self-confrontation six weeks and two years after the end of the experiment

Index	T	H	U	R	I
No. of levels	2	2	2	2	24
Size of population	2	2	2	2	∞

T: Externally mediated self-confrontation via CCTV/VR
H: Traditional tutoring
U: Micro-lesson (1, 2)
R: Viewing occasion (six weeks, two years)
I: Individuals (student teachers)

The design is fully combined and completely balanced. Repeated measurements are made in factors U and R. The evaluation of the analyses of variance follows the same procedure as described earlier. For the reasons given in Chapter 7 the two factors, identification experience and self-evaluation, have not been used for the ANOVA, but a separate ANOVA has been made for each separate statement in schedule F II. The ANOVA results are summarized in Table 60.

11.1 The pattern in the F tests

The statements are grouped in Table 60 on the basis of the factor analytical results presented in Appendix 2. Those not considered to belong to factor I or II have been placed on the right of the table.

Table 60. Summary of significant F tests for student teachers' identification experience and self-evaluation

Source	Statement	Identification experiences			Self-evaluation				Separate statements			
		3	6	10	1	2	4	7	5	8	9	11
T												
H								*				
TH					*						**	
U			**							**		
TU							*					
HU												
THU												
R							**		*		**	**
TR		*				*				*		
HR												
THR												
RU			*		*							
TRU												
HRU												
THRU												

T: Externally mediated self-confrontation via CCTV/VR
H: Traditional tutoring
U: Micro-lesson (1, 2)
R: Viewing occasion (six weeks, two years)
**: $F_{.99}(1,92) = 6.78$
*: $F_{.95}(1,92) = 3.89$

11.1.1 Identification experience

Concerning identification experience, the student teachers were asked to respond to the statement "When I see myself during the viewing (1) I find it very hard to recognize myself and (7) I find it very easy to recognize myself". Within this variable domain there is an effect in factor U and within the RU interaction, which indicates that there are variations in the student teachers' identification experience depending not only on the micro-lesson concerned but also on the repeated confrontations. The effect within the TR interaction implies that externally mediated self-confrontation via CCTV/VR with repeated confrontations six weeks and two years after the self-confrontation experiment influence the student teachers' identification experience. No such effect existed namely during the actual experiment (see Table 15).

11.1.2 Self-evaluation

With regard to self-evaluation the student teachers were asked to respond to statements such as "When I see myself during the viewing I feel (1) completely dissatisfied and (7) completely satisfied". Within this variable domain there are considerably more demonstrable effects than in the variable domain identification experience. There is an effect in factor H (7), but also an effect within the TH interaction (1). Factor U, on the other hand, in contrast to what has emerged from the analysis made during the experiment has not had any effect. The effect within the TU interaction suggests that externally mediated self-confrontation leads to different self-evaluations depending on which micro-lesson is concerned (4). But even repeated confrontations alone influence the student teachers' self-evaluation in relation to separate micro-lessons, as is indicated by the effect within the RU interaction (1).

11.1.3 Individual statements

The effect within the TH interaction (9) suggests that the student teachers find the effect of the viewings profitable to their teacher training. This effect has already been demonstrated in the evaluation of the student teachers' self-evaluation during the experiment. The effect in factor U (8) existed in the earlier analysis too, which means that the attention of the student teachers was captured by single details more or less often.

The effects in factor R were found within the same variables (5, 9, 11) in the repeated viewings during the experiment. The effects indicate that the student teachers' evaluations were also affected after the completion of the experiment.

The effect in the TR interaction, on the other hand, did not exist in the earlier analysis. This effect suggests that externally mediated self-confrontation via CCTV/VR influences the attention of the student teachers differently from viewing to viewing.

To sum up, the pattern in the F tests in this analysis differs substantially from the pattern in the earlier analysis, which concerned the student teachers' identification experience and self-evaluation during the experiment.

As shown in Table 45, the identification experience has not been influenced to any appreciable extent. Both the experimental influence and the repeated confrontations appear, however, to have influenced the student teachers' self-evaluation.

11.2 Precision and power in the F tests

Only half of the effects presented in Table 60 satisfy the criterion for significance $\alpha = .01$. This criterion has formed the basis of all the analyses carried out in connection with the self-confrontation experiment. But not even an effect proven at this level is a sufficient guarantee that

Table 61. Size of effect and power for student teachers' identification experience and selv-evaluation in the re-analysis of the video-recorded material used in the self-confrontation experiment

Source	Identification experiences			Self-evaluation			Separate statements				
Statement	3	6	10	1	2	4	7	5	8	9	11
1. Size of effect (f)											
T											
H							(.11)				
TH				(.15)						.24	
U		.16							.23		
TU						(.16)					
HU											
THU											
R						.19		(.10)		.15	.19
TR	(.17)				(.16)				(.14)		
HR											
THR											
RU		(.17)		(.18)							
TRU											
HRU											
THRU											
2. Power (g)											
T											
H							(.58)				
TH				(.55)						.77	
U		.72							.96		
TU						(.60)					
HU											
THU											
R						.87		(.52)		.67	.87
TR	(.65)				(.60)				(.50)		
HR											
THR											
RU		(.65)		(.70)							
TRU											
HRU											
THRU											

T: Externally mediated self-confrontation via CCTV/VR
H: Traditional tutoring
U: Micro-lesson (1, 2)
R: Viewing occasion (six weeks, two years)
( ): $F_{.95}(1,92) = 3.89$

the interpretation is based on demonstrable effects. In order to avoid the risk of interpreting non-demonstrable effects, it became necessary to estimate the size and power of the effects in the F tests. As before, Hays' $\hat{\omega}^2$ and Cohen's f were calculated. While $\hat{\omega}^2$ can be seen in Appendix 3, Cohen's f and the power (g) in the significant F tests are presented in Table 61. Then on the basis of the power estimations, it is decided which effects should be post-tested.

11.3 Post-testing

Table 61 shows how all the effects are small and the power too low in most cases to justify more detailed analysis and interpretation of the effects.

Within the variable domain identification experience the effect in factor U satisfies the criterion $g > .70$. The cell means are for $u_1 = 4.37$ and for $u_2 = 4.62$, which means that in lesson 2 the student teachers perform more in accordance with their expectations than they had done in lesson 1.

Within the variable domain self-evaluation only the effect in factor R satisfies the criterion $g > .70$. The cell means are for $r_1 = 3.10$ and for $r_2 = 3.51$. The result implies that at the end of their teacher training the student teachers are more satisfied with themselves, but since the assessment is on the negative side of the scale, this means that they are still somewhat dissatisfied with themselves.

Of the "individual statements" the effect within the TH interaction referring to statement 9 will be studied more closely. The cell means are given in Table 62.

Table 62. Contrast analysis TH, statement 9: I consider the viewing to be for my teacher training (1) completely meaningless, (7) very instructive

Order		1	2	3	4
Source		t_1h_1	t_2h_2	t_2h_1	t_1h_2
m		4.99	5.15	5.83	5.83
	t_1h_1		.16	.84	.84
	t_2h_2			.68	.68
	t_2h_1				.00
	t_1h_2				

Scheffés' test
Critical value 1.03

Table 62 shows how the cell means are not demonstrably different. Thus the result permits the interpretation that all the student teachers felt the viewings to be instructive even six weeks and two years after the completion of the experiment.

The effect in factor U satisfies $g > .70$. Statement 8 is worded: During this viewing my attention was caught by single details
(1) very often
(7) very seldom

The cell means are for $u_1 = 3.32$ and for $u_2 = 3.75$. Even if the student teachers' attention was caught less often by details when viewing microlesson 2, it still happened relatively often, despite the fact that there is a longer interval of time between the experiment and viewings and that one would expect the student teachers to have had time to take a more detached view of their experiences during the experiment.

Nor should it be unreasonable to assume that at the end of their teacher training the student teachers place their lessons from the second term in an overall perspective, but this does not appear to be the case.

Finally there is an effect with satisfactory power in factor R referring to statement 11, which was worded:
During this viewing my opinion of my lesson is
(1) completely changed
(7) completely unchanged

The cell means in this factor are for $r_1 = 4.20$ and for $r_2 = 3.60$. From these means we can see that six weeks after completion of the experiment the student teachers consider that their opinion of the lessons is unchanged, but that by the end of their teacher training it has changed.

11.4 Summary of student teachers' assessments by means of schedule F II

After a self-confrontation experiment (Bierschenk, 1972 a) was completed, all the student teachers who had participated in this experiment were asked to re-analyze the experiment's video-recorded material. In connection with viewings of video-recorded material the student teachers were asked to answer schedule F II, which contains two variable domains: identification experience and self-evaluation. In addition there are a number of statements lying outside these variable domains.

Regarding the student teachers' identification experiences six weeks and two years after the actual experiment, only one effect (in factor U) can be said to satisfy the demands set up as the criteria for interpretation. This effect implies that the student teachers feel their performance in lesson 2 to be more in agreement with their expectations than lesson 1 had been.

The remaining effects within this variable domain do not permit any interpretation if one wishes to avoid the risk of basing the interpretation on uncertain results.

Within the variable domain self-evaluation too, there is only one effect that has been examined more closely. The result implies that the student teachers are more satisfied with themselves when viewing the video-recorded material during the sixth term than they had been at the end of the second term. But the assessments still lie on the negative side of the scale. The opposite trend could perhaps have been expected.

Irrespective of whether it si the second or sixth term, all the student teachers feel the viewings to be very instructive.

The fact that there are intervals of six weeks and two years between the student teachers' assessments during the experiment and in the re-analyses and that they have seen their lessons repeatedly during the experiment does not seem to have affected the way in which they focus their attention. Instead of an overall judgment, their attention is still captured relatively often by single details. This result does not tally, however, with the student teachers' statement that their conception of the lessons had changed by the end of the teacher training.

12. ALTERNATIVE TUTORS: ASSESSMENTS AFTER THE EXPERIMENT

In the self-confrontation experiment the student teachers in groups 1 and 3 had ranked alternative suggestions for tutoring a number of times. The result of this ranking is given in Chapter 8. But during the follow-up too the student teachers were asked to rank the nine different suggestions for alternative tutors. Kendall's concordance coefficient was calculated for the rankings carried out by the student teachers six weeks and two years after the completion of the experiment. The degree of agreement within the individual groups is given in Table 63.

Table 63. Degree of agreement in the student teachers' ranking of nine different forms of tutoring (question 12): Concordance coefficient (W)

	Viewing occasion			
	six weeks after the experiment		two years after the experiment	
Group	ML 1	ML 2	ML 1	ML 2
1	.68	.59	.43	.53
2	.68	.63	.58	.64
3	.63	.50	.52	.47
4	.60	.54	.63	.58

All the coefficients presented in Table 63 are significant with $p < .01$. Further the degree of agreement between the four groups was calculated. The concordance coefficient became $W = .94$ six weeks after the experiment and $W = .93$ two years after the experiment.

Thus the individual groups have ranked the suggestions in a similar way. The ranking six weeks after the experiment was as follows: (The ranking that took place two years later is given in brackets.)

1 (2) viewings and comments from a tutor
2 (1) viewings and comments from a lecturer in methodology
3 (4) viewings and comments from a lecturer in education
4 (6) viewing and comments from a psychologist
5 (5) viewings and comments from a pupil
6 (3) viewings and comments from a fellow student teacher
7 (7) viewings alone
8 (8) viewings and comments from some other person. Who?
9 (9) some other arrangement. Which?

Compared to the ranking made by the student teachers during the experiment, the following changes have taken place:

1. the student teachers primarily want tutoring from a tutor
2. the student teachers no longer value comments from a pupil higher than those from a psychologist, but here the rankings have been interchanged.

Thus, the student teachers are largely of the same opinion as during the experiment, and therefore no further comment will be made on this ranking.

Apart from the first and second places, it emerges that at the end of their teacher training, i. e. two years after the experiment was completed, the student teachers rank comments by a fellow student above those of a lecturer in education. This result is probably an indication that the student teachers have learnt during their teacher training to value the views of their fellow students on teaching, which has led to these opinions weighing more heavily than before.

In order to study if and to what extent there is a desire to have the same tutor during the different viewings, the relation between viewings 7-10 was also calculated. The result is given in Table 64.

Table 64. Degree of agreement in the student teachers′ ranking of nine alternative tutors on 4 different viewing occasions: Concordance coefficient (W)

Group	1	2	3	4
W	.26	.03	.12	.01

No relation can be shown between the student teachers′ rankings on the different viewing occasions. This means that on each occasion the student teachers rank the alternative tutors differently. The results that have emerged in the evaluation of alternative forms of tutoring indicate that research is needed to make a more systematic study than has been possible here and in Chapter 8 of tutoring, which occupies a central position in the teacher training. Moreover, no systematic studies appear to have been made yet of this type of dyadic process.

13. CONCLUDING DISCUSSION AND RECOMMENDATIONS FOR FURTHER RESEARCH

The teacher's ability to master the problems with which he is faced in his work presuppose that he can observe himself in interaction with pupils and differentiate structures that are meaningful for him in this process of interaction. By the use of closed circuit television and video-recording (CCTV/VR), the teacher can become his own "external observer and commentator". One of the essential factors in analysis, diagnosis and synthesis of intrapersonal events in teaching situations is namely that the individual himself has insight into his own actions. This insight cannot be mediated through the judgment of another person, but must be acquired by the individual himself. On the other hand tutoring could perhaps in many cases make this easier.

"Externally mediated self-confrontation via CCTV/VR" is a new technique whereby an individual is given feedback of objective information about his own behaviour. A summary will be given below of the main results of the student teachers' reactions to this "external self-distancing in time and space" with regard to (1) repeated confrontations during the self-confrontation experiment conducted during the school years 1968/69 and 1969/70, and (2) repeated confrontations six weeks and two years after the completion of the experiment. In addition an account is given of the extent to which the student teachers' perception and evaluation differ from the mean assessments of educational experts.

13.1 Repeated confrontations during the self-confrontation experiment

13.1.1 Assessment and evaluation schedule F III

The analysis of variance evaluation has shown that the student teachers' perception and evaluation is influenced by repeated confrontations with the micro-lessons that were video-recorded during the experiment.

Effects can be demonstrated within the (1) ego-ego, (3) ego-NPO, (4) pupil-ego and (5) pupil-pupil relations. Repeated confrontations appear to be lacking in effect on the student teachers' perception and evaluation however within the (2) ego-pupil and (6) pupil-NPO relations.

The precision and power assessments showed however that the effects shown do not satisfy the criteria set up for the evaluation. Thus, repeated confrontations with the experiment's video-recorded micro-lessons for 5 to 10 minutes, 1 day and 7 days after the recording have not led to effects on which detailed interpretations can be based.

13.1.2 Identification and self-evaluation schedule F II

A fundamental theme that has been of varying importance for psychological research and discussions are the imperative "Know yourself" and "Be true to yourself". Both imply intentions and goals. But these challenges also imply the hypothesis that people can govern and control their own behaviour, thoughts emotions and attitudes. Externally mediated self-confrontation appears to affect an individual's personality in a very special way.

Student teachers' identification experiences are influenced by repeated confrontations. When there are several viewings, a de-automatization and re-direction of attention takes place. When the same lesson had been viewed three times, the student teachers could only to a small extent recognize themselves on the TV monitor. It was not until after five viewings that they experienced their own behaviour as they had expected it to be. After six or more viewings a new alienation to their own behaviour was felt, i. e. the student teachers had discovered new behaviours that they had not expected.

Thus, for self-analysis, diagnosis and synthesis to be possible, the student teachers must be given time to become acquainted with their own image. Behaviours that have become unconscious (routine or automatic) must first be made conscious again (de-automated) so that they can be altered. It must be emphasized that the student teachers have, unaided by the tutor, discovered actual new behaviours that are not in agreement with the existent self-conception.

Through the use of closed circuit television and video-recording, the student teachers have been able to look at themselves from "outside" and evaluate what they see. The results of the experiment imply that the student teachers' self-evaluation develops differently in repeated confrontations with micro-lessons 1 and 2 respectively. Repeated confrontations with the same micro-lesson resulted in interpretable revaluations. The self-evaluation was changed regarding (1) how satisfied they were with seeing themselves and (2) how pleasant it was to see themselves on the TV monitor.

The student teachers given tutoring found it more pleasant to see themselves on the TV monitor. Some form of reassurance from the tutor probably causes the student teachers to retain their impressions from the first viewing. Thus the tutor seems to sustain the student teachers' usual way of regarding themselves, which in its turn does not permit any change in a relative autonomy (i. e. freedom from influence from authorities).

One of the hypotheses of the experiment has been that student teachers wish primarily to see their lessons alone, at least at the first viewing. This was one of the reasons for asking them to rank nine alternative forms of tutoring. The ranking has shown that student teachers put in first and second place tutoring from a tutor or lecturer in methodology and that being alone during the viewing of the micro-lessons was put in seventh place.

13.2 Repeated confrontations six weeks and two years after the experiment

Teaching skill is largely a question of how flexible a teacher is in the way in which he behaves in his contacts with the pupils and the extent to which he can direct himself in building up the desired teaching behaviour. If such self-direction is to be fruitful, it is also necessary for the teacher to be sensitive to a course of events so that he perceives it correctly. The teacher´s perception and evaluation of a situation finally determines whether he has succeeded in correctly predicting the consequences of alternative behaviours. Moreover, many preliminary experiences and results from the evaluation of the importance of personality variables (see Bierschenk, 1972, pp 90-94) for the individual´s perception and evaluation of his own video-recorded behaviours suggest that variables such as self-perception, tension and self-confidence play a very important part in the student teachers´ perception and evaluation of their own video-recorded teaching situations.

13.2.1 Level analysis of student teachers´ assessments by means of the assessment and evaluation schedule F III

After the completion of the self-confrontation experiment, all 96 student teachers who had participated in the experiment were shown their own video-recorded lessons. The analysis has shown nine effects in "externally mediated self-confrontation via CCTV/VR" (factor T) and traditional tutoring (factor H) plus the TH interaction. But the effects are small and the power low. This makes the interpretable effect in factor H and in the HA interaction even more surprising. Traditional tutoring resulted in the student teachers receiving this influence being more positive in their perception of the pupil-pupil relation than those not given this influence. On the other hand the evaluation has not been influenced by the comments of the tutor. Although the mean values in the other effécts are marginal, the evaluation appears in some cases to follow the perception like a shadow. That two years´ teacher training should in differences of level only marginally influence the student teachers´ perception and evaluation is an unexpected result.

13.2.2 Level analysis of differences between the assessments of educational experts and student teachers

The student teachers' perception and evaluation as revealed in the assessment and evaluation schedule F III during the sixth term was compared with the assessments made by educational experts using the same schedule (F III) during the second term of the student teachers' training.

The pattern in the F tests shows, as in the earlier analysis (Bierschenk, 1972, p. 214), nineteen effects. There has been a shift, however. Assuming that the teacher training has a levelling effect on the influence administered during the second term, it is an unexpected result to find in the sixth term more T, H and TH effects than had previously been the case. A greater differentiation has taken place with regard to differences in perception and evaluation. The perception has changed more markedly than the evaluation. In addition most of the changes have taken place within the pupil dimension.

13.2.3 Structure analysis of student teachers' assessments during the second and sixth term

The existence and extent of structural similarities in the student teachers' perception and evaluation was studied by means of canonical correlation analyses. The analyses show that the predictable variance is equally large in the student teachers' assessments during the second and sixth terms. The analysis shows that the student teachers' assessments in the second and sixth terms within all variable domains have resulted in changes, not only with regard to the size of the "canonical loadings", but also regarding the variables that have been most important for the perception and evaluation respectively.

13.2.4 Structure analysis of educational experts' assessments during the second term and student teachers' assessments during the sixth term

Concerning the agreement between the assessments of the educational experts and those of the student teachers, there are in the sixth term more demonstrably correlated canonical components than had been the case during the student teachers' second term. This indicates that the student teachers' structure of perception has become more differentiated. It proved that during the second term significant correlations in the evaluation could only be demonstrated on one occasion, which suggests instability. In the sixth term there is a demonstrable agreement between the perception of the educational experts and that of the student teachers and it seems in addition to have increased in differentiation. The examination of the analyses for possible structural similarities showed, however, despite a number of significant canonical correlations, large structural differences. Moreover, the size of the "canonical loadings" varies strongly. If this analysis is compared to the one described in Chapter 13.2.3, large structural differences are apparent. But it must also be mentioned that the assessments made by the educational experts during the second term and those of the student teachers during the sixth term have shown a more consistent structure, which has led among other things to it being easier to describe and interpret.

13.2.5 Level analysis of student teachers' assessments using the identification and self-evaluation schedule F II

As far as identification experiences six weeks and two years after the self-confrontation experiment are concerned, the student teachers feel their performance in lesson 2 to be more in agreement with what they had expected than in lesson 1. They are more satisfied with themselves when viewing in the sixth term than they had been at the end of their second term. Instead of an overall assessment, however, the attention is still being captured relatively often two years later by single details. All the student teachers feel that the viewings, whether in the second or sixth term, are instructive for their teacher training.

During the self-confrontation experiment the student teachers had repeatedly ranked alternative suggestions as to forms of tutoring. Compared to the ranking two years later, the following changes had taken place: (1) primarily tutoring is desired from a tutor and (2) comments from a pupil are no longer valued higher than comments from a psychologist, instead these two rankings have been interposed, and (3) comments from a fellow student teacher are ranked higher than comments from a lecturer in education. In addition the alternative tutors are ranked differently on each occasion, which suggests that research is badly needed to study the problem field of tutoring in more detail than has been possible within the frame of this analysis.

13.3 Recommendations for further research

Research into teacher training has not been able to show that there is any special teacher behaviour that can be said to be the best teaching behaviour. If we could for a reasonably long period of time train teachers in self-observation, analysis, diagnosis and synthesis of influence patterns in teaching situations and help them to develop strategies for controlling and governing themselves, their teaching would probably improve considerably.

Despite the fact that the technical development of CCTV/VR has currently reached a level that has provided high standard systems and great opportunities for fundamentally improving research on the behavioural sciences, teaching and teacher training, the interest in this technique appears to have subsided to an indefensible degree. No further arguments and reasons for using this medium vill be given here, but instead a few suggestions will be presented briefly for research tasks that would, if carried out, provide a valuable contribution to the development of educational-psychological programmes and analysis instruments, which in their turn could change both the teacher training and teaching in general.

1. Behaviour simulators constructed in agreement with theories of behavioural science could form the foundation for decision training and the design of flexible behaviour strategies in teachers or prospective teachers. With a flexible and integrative use of a system of behaviour simulators we could achieve real changes and not simply intellectual insight into behavioural patterns. In teacher training it is essential that teachers are trained in the development of behaviour strategies. If this is to be possible, the teacher must by means of behaviour simulators be made sensitive to courses of events so that he perceives these correctly.

2. The tutoring given to student teachers by different teacher trainers is one of the cornerstones of teacher training. This means that a "teacher-pupil relation" exists and that this form of training can essentially be described as passive learning by the person being tutored. The student teacher usually adopts the attitude of the pupil, which can be described as follows: Since you are the teacher, please tell me what I am to do. In other words, the student teacher need not change the behavioural patterns that have been well trained during his pre-school education, compulsory schooling and sixth form work or even change the expectation that learning can take place by any other means than passive observation.

   This situation could be changed by means of CCTV/VR. Berger (1970, p. 38) describes a fascinating idea that has been tried out by Barchilon. The idea involves letting student teachers observe a video-recorded teaching situation in which the student's tutor is teaching a group of pupils. They are then told to act as tutor to the tutor they have seen on the TV monitor. Thereby they have to formulate the course of events and criticize the tutor. The essential factor is the psychological process that has been developed in the student teachers on whom the idea has been tested.

Firstly the student teachers quickly gain assurance, secondly they participate more actively and thirdly they are more uninhibited and transfer all their defensive attitudes on to the tutor. The exaggerated hostility and aggressiveness shown by the student teachers towards the tutor is, as described by Berger, a result of the fact that for the first time during their education the student teachers find that they have the upper hand.

In the next phase, i.e. after the initial hypercritical one, the students begin, partly unconsciously, to identify with the tutor. Finally this phase turns into realistic cooperation between two equals. The probable consequence of this process is that these student teachers become very perceptive "tutors" for the schoolchildren.

3. Neither in teacher training nor elsewhere have any attempts been made to make use of the CCTV/VR system in practical school work. Nowadays there are simple, portable and relatively cheap CCTV systems of high quality available on the market. These could be splendid aids for the teacher in his work of developing the pupils' personalities in the new school. They could be used for analysis and synthesis of teacher-pupil relations in the daily work of the school. No research has been done into what it means for teacher and pupils to study their mutual relations together. One would expect such analyses to change the relation from one in which the pupil is the object of the teacher's attempts at education to one in which the pupil is looked upon more as a person and less as an object. For the teacher such an analysis would in all probability have a positive effect on his educational work.

The IPR technique (inter-personal-process-recall) has shown that teachers are afraid of pupil behaviours or behaviours in other teachers that they almost certainly will not meet. By the use of portable CCTV/VR systems we can perhaps free teachers and pupils from such expectations, i.e. show them that their actions are often governed by imagined behaviours that are only a part of their most secret thoughts.

Through the integration of CCTV/VR as an active part of the teaching, both teachers and pupils could acquire "fellow-being competence" that would not be possible without this technique of self-confrontation. CCTV/VR and self-confrontation alone are naturally not enough to achieve the intended psychological growth of the personality. There must also be some form of tutoring or instrument analysis.

A project in which we could make a more systematic study of the ideas outlined above must concentrate to a large degree on the development of instruments for analysis and directions for diagnosis. To sum up, such a project would study the individual's (1) handling of internal and external self-image, (2) skills in the use of self-observation instruments, (3) ability in the analysis of intrapersonal and interpersonal processes, (4) ability in self-diagnosis and self-change, (5) ability in synthesis and integration of information in the existing self-image and (6) agreement in diagnosis and synthesis of the teaching processes among different people involved.

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15. APPENDICES

App. No.

15.1 Assessment and evaluation schedule F III: ANOVA tables for student teachers' self-assessment in repeated confrontation with the same micro-lesson during the self-confrontation experiment 1:1 -1:2

15.2 Identification and self-evaluation schedule F II: A factor analysis 2:1 -2:2

15.3 Identification and self-evaluation schedule F II: ANOVA tables for student teachers' self-assessment in repeated confrontation with the same micro-lesson during the self-confrontation experiment 3:1 -3:2

15.4 Assessment and evaluation schedule F III: ANOVA tables for student teachers' self-assessment six weeks and two years after the self-confrontation experiment 4:1 -4:3

15.5 Identification and self-evaluation schedule F II: ANOVA tables for student teachers' self-assessment six weeks and two years after the self-confrontation experiment 5:1 -5:2

15.6 Assessment and evaluation schedule F III: ANOVA tables for differences between educational experts' mean assessment during the second term and student teachers' self-assessment during their sixth term 6:1 -6:2

15.7 Assessment and evaluation schedule F III: Canonical correlation analyses of:

1. student teachers' self-assessments during their second and sixth terms
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15.8 Identification and self-evaluation schedule F II: ANOVA tables for student teachers' self-assessment six weeks and two years after the self-confrontation experiment 8:1 -8:2

15.9 Assessment and evaluation schedule F III. Canonical correlation analyses of student teachers' and educational experts' assessments during the second term 9:1 -9:7

Table 1. ANOVA table for student teachers' self-assessment in repeated confrontation with the same micro-lesson. Variable domain 1: Ego-ego relation

Source	df	MS	F	ω^2	f	g
G	1	8.89				
I(G)	46	29.28				
U	1	88.55	17.92**	.02	.18	.94
GU	1	1.13				
UI(G)	46	4.94				
R	2	4.25	3.32*	.00	.08	.43
GR	2	1.33				
RI(G)	92	1.28				
A	1	387.20	20.86**	.11	.19	>.97
AG	1	3.07				
AI(G)	46	18.56				
UR	2	3.15	3.57*	.00	.16	.67
GUR	2	1.63				
URI(G)	92	.88				
AU	1	17.58	5.68*	.00	.14	.72
AGU	1	.43				
AUI(G)	46	3.10				
AR	2	2.55	3.26*	.00	.15	.62
AGR	2	1.02				
ARI(G)	92	.78				
AUR	2	1.61				
AGUR	2	.08				
AURI(G)	92	.71				
V	19	4.25				
GV	19	7.58				
IV(G)	874	7.97				
UV	19	6.35				
GUV	19	2.72				
UIV(G)	874	1.92				
RV	38	2.00				
GRV	38	.99				
RIV(G)	1748	.69				
AV	19	409.97	57.06**			
AGV	19	9.69				
AIV(G)	874	7.18				
URV	38	1.03				
GURV	38	.78				
URIV(G)	1748	.69				
AUV	19	1.32				
AGUV	19	2.02				
AUIV(G)	874	1.66				
ARV	38	1.11				
AGRV	38	.71				
ARIV(G)	1748	.69				
AURV	38	.93				
AGURV	38	1.06				
AURIV(G)	1748	.65				

Table 2. ANOVA table for student teachers' self-assessment in repeated confrontation with the same micro-lesson. Variable domain 2: Ego-pupil relation

Source	df	MS	F	ω^2	f	g
G	1	1.28	.08			
I(G)	46	15.50				
U	1	50.92	14.41**	.02	.16	.89
GU	1	12.94				
UI(G)	46	3.53				
R	2	1.96				
GR	2	.13				
RI(G)	92	.95				
A	1	48.76	4.65*	.02	.09	.44
AG	1	9.43				
AIG	46	10.47				
UR	2	.44				
GUR	2	.89				
URI(G)	92	.82				
AU	1	14.45				
AGU	1	5.79				
AUI(G)	46	3.83				
AR	2	.89				
AGR	2	.12				
ARI(G)	92	.48				
AUR	2	.16				
AGUR	2	.69				
AURI(G)	92	.71				
V	23	179.15	66.52**			
GV	23	17.10				
IV(G)	1058	7.20				
UV	23	9.75	5.40*			
GUV	23	2.07				
UIV(G)	1058	1.81				
RV	46	.71				
GRV	46	.54				
RIV(G)	2116	.69				
AV	23	571.53	77.60**			
AGV	23	12.91				
AIV(G)	1058	7.37				
URV	46	.54				
GURV	46	.53				
URIV(G)	2116	.68				
AUV	23	5.61				
AGUV	23	1.06				
AUIV(G)	1058	1.68				
ARV	46	.79				
AGRV	46	.59				
ARIV(G)	2116	.96				
AURV	46	.53				
AGURV	46	.59				
AURIV(G)	2116	.60				

Table 3. ANOVA table for student teachers' self-assessment in repeated confrontation with the same micro-lesson. Variable domain 3: Ego-NPO relation

Source	df	MS	F	ω^2	f	g
G	1	.12				
I(G)	46	18.74				
U	1	20.13	6.49*	.01	.11	.53
GU	1	.38				
UI(G)	46	3.10				
R	2	2.09				
GR	2	.86				
RI(G)	92	.96				
A	1	1091.73	209.09**	.39	.48	>.99
AG	1	1.00				
AI(G)	46	5.22				
UR	2	2.31				
GUR	2	.04				
URI(G)	92	.84				
AU	1	31.82	14.56**	.01	.23	.88
AGU	1	1.60				
AUI(G)	46	2.19				
AR	2	[illegible].45	8.58**	.00	.24	.87
AGR	2	.96				
ARI(G)	92	.52				
AUR	2	1.67	3.35*	.00	.22	.65
AGUR	2	.82				
AURI(G)	92	.50				
V	11	225.28	40.73**			
GV	11	3.89				
IV(G)	506	5.53				
UV	11	11.14	5.51*			
GUV	11	1.08				
UIV(G)	506	2.02				
RV	22	1.33				
GRV	22	.70				
RIV(G)	1012	.55				
AV	11	347.18	48.54**			
AGV	11	12.82				
AIV(G)	506	7.15				
URV	22	1.44				
GURV	22	.64				
URIV(G)	1012	.58				
AUV	11	26.11	11.27**			
AGUV	11	2.16				
AUIV(G)	506	2.32				
ARV	22	1.42				
AGRV	22	.56				
ARIV(G)	1012	.53				
AURV	22	.74				
AGURV	22	.32				
AURIV(G)	1012	.51				

Table 4. ANOVA table for student teachers' self-assessment in repeated confrontation with the same micro-lesson. Variable domain 4: Pupil-ego relation

Source	df	MS	F	ω^2	f	g
G	1	62.08				
I(G)	46	30.40				
U	1	5.26				
GU	1	.14				
UI(G)	46	2.42				
R	2	3.26	4.12*	.00	.09	.49
GR	2	.95				
RI(G)	92	.79				
A	1	7471.11	209.22**	.66	.60	>.99
AG	1	170.16				
AI(G)	46	35.71				
UR	2	1.59				
GUR	2	.44				
URI(G)	92	.94				
AU	1	2.93				
AGU	1	1.11				
AUI(G)	46	2.13				
AR	2	.98				
AGR	2	.12				
ARI(G)	92	.88				
AUR	2	1.84				
AGUR	2	.75				
AURI(G)	92	.69				
V	9	206.69	29.84**			
GV	9	5.65				
IV(G)	414	6.93				
UV	9	1.42				
GUV	9	.91				
UIV(G)	414	1.07				
RV	18	.80				
GRV	18	.41				
RIV(G)	828	.53				
AV	9	504.82	88.38**			
AGV	9	7.07				
AIV(G)	414	5.71				
URV	18	.53				
GURV	18	.59				
URIV(G)	828	.53				
AUV	9	1.01				
AGUV	9	1.21				
AUIV(G)	414	1.25				
ARV	18	.69				
AGRV	18	.76				
ARIV(G)	828	.53				
AURV	18	.21				
AGURV	18	.68				
AURIV(G)	828	.53				

Table 5. ANOVA table for student teachers' self-assessment in repeated confrontation with the same micro-lesson. Variable domain 5: Pupil-pupil relation

Source	df	MS	F	ω^2	f	g
G	1	31.17	4.51*	.01	.09	.60
I(G)	46	6.92				
U	1	2.01	.72			
GU	1	10.29				
UI(G)	46	2.79				
R	2	.64				
GR	2	1.15				
RI(G)	92	.73				
A	1	339.17	41.55**	.20	.27	>.99
AG	1	18.41				
AI(G)	46	8.16				
UR	2	.12				
GUR	2	1.66				
URI(G)	92	.73				
AU	1	.16				
AGU	1	1.56				
AUI(G)	46	2.86				
AR	2	3.00	3.64*	.00	.16	.67
AGR	2	3.28	3.98*	.00	.17	.72
ARI(G)	92	.83				
AUR	2	.39				
AGUR	2	.05				
AURI(G)	92	.89				
V	3	43.76	3.93*			
GV	3	.71				
IV(G)	138	11.14				
UV	3	7.86	3.64*			
GUV	3	.39				
UIV(G)	138	2.16				
RV	6	.94				
GRV	6	.73				
RIV(G)	276	.96				
AV	3	466.78	53.47**			
AGV	3	12.81				
AIV(G)	138	8.73				
URV	6	1.09				
GURV	6	.21				
URIV(G)	276	.92				
AUV	3	1.35				
AGUV	3	10.29				
AUIV(G)	138	1.85				
ARV	6	3.94	4.48*			
AGRV	6	1.24				
ARIV(G)	276	.88				
AURV	6	1.43				
AGURV	6	1.05				
AURIV(G)	276	.82				

Table 6. ANOVA table for student teachers' self-assessment in repeated confrontation with the same micro-lesson. Variable domain 6: Pupil-NPO relation

Source	df	MS	F	ω^2	f	g
G	1	2.99				
I(G)	46	10.68				
U	1	.04				
GU	1	10.70				
UI(G)	46	5.14				
R	2	.29				
GR	2	.24				
RI(G)	92	.99				
A	1	102.94	15.78**	.06	.17	>.92
AG	1	.96				
AI(G)	46	6.52				
UR	2	2.31				
GUR	2	.01				
URI(G)	92	.77				
AU	1	2.99				
AGU	1	26.05				
AUI(G)	46	3.80				
AR	2	1.04				
AGR	2	.36				
ARI(G)	92	.58				
AUR	2	.05				
AGUR	2	.55				
AURI(G)	92	.57				
V	3	310.19	76.73**			
GV	3	2.59				
IV(G)	138	4.04				
UV	3	.91				
GUV	3	8.50				
UIV(G)	138	1.99				
RV	6	.63				
GRV	6	.63				
RIV(G)	276	.54				
AV	3	439.17	115.68**			
AGV	3	4.96				
AIV(G)	138	3.80				
URV	6	.19				
GURV	6	.41				
URIV(G)	276	.72				
AUV	3	2.52				
AGUV	3	.74				
AUIV(G)	138	1.59				
ARV	6	.27				
AGRV	6	.67				
ARIV(G)	276	.51				
AURV	6	.81				
AGURV	6	.33				
AURIV(G)	276	.48				

Appendix 2:1

Factor analysis of schedule F II by means of the principal axis method and varimax rotation

Schedule F II contains two a priori defined variable domains: "identification experience and self-evaluation". Using a factor analysis based on the principal axis method, all factors with the positive eigen value $\lambda = 1.00$ were extracted. For assessment of the communality squared multiple correlations were used. This analysis has verified a priori division, i. e. schedule F II also contains two factors according to the empirical-statistical analysis. The factor loadings in the individual statements are given in Table 1, separately for micro-lessons 1 and 2.

Table 1. Factor analysis of schedule F II by means of the principal axis method and varimax rotation

Item No.	Micro-lesson 1 Rotated factors					h^2	Micro-lesson 2 Rotated factors					h^2
	I	II	III	IV	V		I	II	III	IV	V	
1	.07	.03	.21	.65	.07	.48	.20	.20	-.01	.59	.23	.49
2	-.12	.08	.16	.10	.48	.28	-.04	.14	.02	.69	-.20	.53
3	.69	.16	-.21	.40	-.10	.71	.64	.34	-.05	-.02	.03	.52
4	.19	.60	.28	.20	-.03	.51	.33	.67	.07	.19	-.32	.70
5	.05	-.04	.61	.15	.03	.40	.12	.29	.59	-.11	-.10	.47
6	.75	.21	.00	.08	-.08	.61	.63	.10	.07	.04	-.00	.41
7	.17	.59	.02	.43	.11	.57	.21	.70	-.06	.18	.06	.58
8	-.17	.14	.64	.03	.14	.47	.02	-.08	.63	.08	.03	.42
9	.55	-.07	-.17	.13	.13	.36	-.07	.32	.09	.06	.08	.13
10	-.73	.07	.06	.07	.09	.55	-.67	.17	-.12	-.12	.26	.57
11	.47	-.12	.10	.15	-.38	.41	.46	.07	.04	.06	-.44	.42
λ	2.32	1.51	.83	.48	.23	5.37	2.47	1.02	.76	.65	.34	5.24
PTV %	21.09	13.72	7.54	4.36	2.09	48.81	22.45	9.27	6.90	5.90	3.09	47.63

λ : eigen value
PTV: proportion of the total variance in %
Significant factor loadings: $a_{ip} \geq 50$

As can be seen from Table 1, the criterion for significant loadings is much higher than is usually recommended. But a factor analysis that is only based on 48 subjects should be interpreted very cautiously, since the mean error, for example, for a 99% confidence interval for a population correlation of .80 when there are 40 subjects is (59,91). This means that the correlations are not statistically confirmed even with regard to the first decimal (n = 150 would not even be a sufficiently large n-figure). But in determining the random sample, the size must also be placed in relation to the number of variables. There are two reasons why this factor analysis is presented despite the unsatisfactory n-figures: (1) Table 4 shows how the factor structure changes negligibly from micro-lesson 1 to micro-lesson 2 and (2) the factor structure can possibly be of help in summarizing the results of the ANOVA. Since the n-figures are low, however, the factors are not utilized in the level analysis, but instead a separate ANOVA has been carried out for each of the eleven statements.

The first factor (I) includes, irrespective of the lesson concerned, statements 3, 6 and 10, i.e.

3. When I see myself during the viewing
   (1) I find it very difficult to recognize myself
   (7) I find it very easy to recognize myself
6. When during the viewing I see how I behave I think that I am
   (1) the exact opposite to what I had expected
   (7) exactly as I had expected
10. When I see myself during the viewing my conception of myself as a person is
   (1) completely unchanged
   (7) completely changed

The second factor (II) consists of statements 4 and 7, i.e.

4. When I see myself during the viewing I am
   (1) completely dissatisfied
   (7) completely satisfied
7. I find viewing myself on the TV screen
   (1) very unpleasant
   (7) very pleasant

Such pairs of factors should preferably not be interpreted as common factors. A new factor analysis in which only two factors were rotated showed that statements 1, 2, 4 and 7 form a common variable domain with loadings (1 = .53, 2 = .53). Finally, factor III remains, which is defined by statements 5 and 8. Both statements were included in the renewed factor analysis of lesson 1 in the first factor and in lesson 2 in the second factor. Factor III must be regarded as a specific pair of factors and should not be interpreted. Statement 11, on the other hand, loaded in the first of the two factors in both lessons.

To sum up, the result of the factor analyses can be interpreted in the following way: Schedule F II contains two factors:
Factor I, which can be described as an identification factor and
Factor II, which can be described as a self-evaluation factor.
Statements 5, 8, 9 and 11, on the other hand, lie outside these variable domains and should be excluded if the instrument is revised.

Table 1. ANOVA table for statement 1: I observe myself during the recording (1) not at all in the same way as other people, (7) in exactly the same way as other people

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	25.68				
I(G)	46	11.51				
U	1	4.04	4.81*	.00	.18	.84
GU	1	.22				
UI(G)	46	.84				
R	2	2.82				
GR	2	.37				
RI(G)	92	2.29				
RU	2	.34				
GRU	2	.46				
RUI(G)	92	.76				

Table 2. ANOVA table for statement 2: When I see myself during the viewing, I am (1) much more critical of myself than of others, (7) much less critical of myself than of others

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	1.53				
I(G)	46	.51				
U	1	.78				
GU	1	.17				
UI(G)	46	.87				
R	2	.63				
GR	2	.51				
RI(G)	92	1.05				
RU	2	.26				
GRU	2	.33				
RUI(G)	92	.51				

Table 3. ANOVA table for statement 3: When I see myself during the viewing, (1) I find it very difficult to recognize myself, (7) I find it very easy to recognize myself

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	8.68				
I(G)	46	9.08				
U	1	8.68	8.86**	.01	.25	.95
GU	1	.06				
UI(G)	46	.98				
R	2	3.76				
GR	2	4.06				
RI(G)	92	2.50				
RU	2	3.93	5.61**	.00	.40	>.99
GRU	2	.26				
RUI(G)	92	.70				

Table 4. ANOVA table for statement 4: When I see myself during the viewing, I am (1) completely dissatisfied, (7) completely satisfied

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	.03				
I(G)	46	5.30				
U	1	5.84	4.87*	.01	.15	.72
GU	1	.59				
UI(G)	46	1.86				
R	2	16.45	16.13**	.03	.33	>.99
GR	2	.14				
RI(G)	92	1.02				
RU	2	.57				
GRU	2	.00				
RUI(G)	92	.59				

Table 5. ANOVA table for statement 5: When I see myself during the viewing, I concentrate my attention (1) wholly on the details, (7) wholly on the overall impression

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	2.35				
I(G)	46	5.80				
U	1	.89				
GU	1	.50				
UI(G)	46	.85				
R	2	6.90	4.23*	.01	.17	.86
GR	2	.48				
RI(G)	92	1.63				
RU	2	.86				
GRU	2	.97				
RUI(G)	92	1.05				

Table 6. ANOVA table for statement 6: When during the viewing I see how I behave, I think that I am (1) the exact opposite to what I had expected, (7) exactly as I had expected

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	.17				
I(G)	46	5.16				
U	1	13.78	19.14**	.03	.36	.99
GU	1	.00				
UI(G)	46	.72				
R	2	1.05				
GR	2	2.34				
RI(G)	92	1.40				
RU	2	3.66	8.51**	.01	.44	>.99
GRU	2	.21				
RUI(G)	92	.43				

Table 7. ANOVA table for statement 7: I find viewing myself on the TV screen (1) very unpleasant, (7) very pleasant

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	5.84				
I(G)	46	5.35				
U	1	1.00				
GU	1	.17				
UI(G)	46	.61				
R	2	5.28	8.52**	.00	.24	.97
GR	2	4.92	7.94**	.00	.47	>.99
RI(G)	92	.62				
RU	2	.05				
GRU	2	.38				
RUI(G)	92	.31				

Table 8. ANOVA table for statement 8: During this viewing my attention was caught by single details (1) very often, (7) very seldom

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	1.13				
I(G)	46	5.43				
U	1	32.00	33.33**	.05	.48	>.99
GU	1	.06				
UI(G)	46	.96				
R	2	5.11				
GR	2	.14				
RI(G)	92	1.67				
RU	2	.64				
GRU	2	1.27				
RUI(G)	92	1.25				

Table 9. ANOVA table for statement 9: I consider the viewing to be for my teacher training (1) completely meaningless, (7) very instructive

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	25.08	4.82*	.05	.18	.84
I(G)	46	5.20				
U	1	.59				
GU	1	.09				
UI(G)	46	.37				
R	2	49.21	25.50**	.13	.42	>.99
GR	2	4.84				
RI(G)	92	1.93				
RU	2	.69				
GRU	2	.17				
RUI(G)	92	.52				

Table 10. When I see myself during the viewing, my conception of myself as a person is (1) completely unchanged, (7) completely changed

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	7.35				
I(G)	46	7.89				
U	1	4.01	3.48*	.00	.16	.76
GU	1	2.00				
UI(G)	46	1.15				
R	2	2.55				
GR	2	2.05				
RI(G)	92	1.59				
RU	2	.36				
GRU	2	.51				
RUI(G)	92	1.08				

Table 11. ANOVA table for statement 11: During this viewing my opinion of my lesson is (1) completely changed, (7) completely unchanged

Source	df	MS	F	$\hat{\omega}^2$	f	g
G	1	.68				
I(G)	46	6.70				
U	1	13.35	7.63**	.04	.23	.88
GU	1	5.01				
UI(G)	46	1.75				
R	2	16.63	5.85**	.02	.17	.59
GR	2	1.92				
RI(G)	92	2.98				
RU	2	.46				
GRU	2	.75				
RUI(G)	92	1.52				

Table 2. Means and standard deviations for the statements in schedule F II

Item No.	CONTENT	Micro-lesson 1		Micro-lesson 2	
		Mean	Standard-deviation	Mean	Standard-deviation
1	I observe myself during the recording (1) not at all in the same way as other people (7) in exactly the same way as other people	3.48	1.76	3.81	1.83
2	When I see myself during the viewing, I am (1) much more critical of myself than of others (7) much less critical of myself than of others	2.23	1.13	2.44	1.22
3	When I see myself during the viewing, (1) I find it very difficult to recognize myself (7) I find it very easy to recognize myself	4.21	1.68	5.00	1.50
4	When I see myself during the viewing, I am (1) completely dissatisfied (7) completely satisfied	3.73	1.11	3.90	1.26
5	When I see myself during the viewing, I concentrate my attention (1) wholly on the details (7) wholly on the overall impression	4.42	1.38	4.60	1.50
6	When during the viewing I see how I behave, I think that I am (1) the exact opposite to what I had expected (7) exactly as I had expected	4.35	1.30	5.23	1.08
7	I find viewing myself on the TV screen (1) very unpleasant (7) very pleasant	4.08	1.20	4.19	1.27
8	During this viewing my attention was caught by single details (1) very often (7) very seldom	3.38	1.35	4.23	1.29
9	I consider the viewing to be for my teacher training (1) completely meaningless (7) very instructive	6.50	0.74	6.67	0.60
10	When I see myself during the viewing, my conception of myself as a person is (1) completely unchanged (7) completely changed	3.85	1.63	3.46	1.49
11	During this viewing my opinion of my lesson is (1) completely changed (7) completely unchanged	4.31	1.67	4.73	1.50

Table 1. ANOVA table for student teachers´ assessements after a self-confrontation experiment: Ego-ego relation

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	16.52				
H	1	12.89				
TH	1	21.82				
I(TH)	92	24.52				
U	1	191.59	60.76**	.03	.24	>.99
TU	1	6.37				
HU	1	7.40				
THU	1	.07				
UI(TH)	92	2.87				
R	2	108.31	35.52**	.02	.31	>.99
TR	2	12.31	4.06*	.00	.15	.89
HR	2	3.66				
THR	2	1.26				
RI(TH)	184	3.35				
A	1	392.45	21.43**	.06	.14	>.99
TA	1	.03				
HA	1	7.69				
THA	1	20.37				
IA(TH)	92	18.31				
UR	2	1.17				
TUR	2	.15				
HUR		1.01				
THUR						
URI(TH)						
UA	1	22.56	10.25**	.00	.14	.75
TUA	1	.13				
HUA	1	.27				
THUA	1	.99				
UIA(TH)	92	2.20				
RA	2	42.04	18.36**	.01	.31	>.99
TRA	2	11.09	4.84*	.00	.23	.92
HRA	2	2.47				
THRA	2	1.11				
RIA(TH)	184	2.29				
URA	2	.51				
TURA	2	1.71				
HURA	2	1.50				
THURA	2	.24				
URIA(TH)	184	.97				
F	19	701.99	109.86**			
TF	19	8.68				
HF	19	3.83				
THF	19	7.99				
IF(TH)	1748	6.39				
UF	19	9.29	7.26*			
TUF	19	1.91				
HUF	19	1.52				
THUF	19	2.61				
UIF(TH)	1748	1.28				
RF	38	7.58	5.23*			
TRF	38	2.72				
HRF	38	1.25				
THRF	38	1.32				
RIF(TH)	3496	1.45				
AF	19	711.83	125.32**			
TAF	19	7.26				
HAF	19	3.74				
THAF	19	12.46				
IAF(TH)	1748	5.68				
URF	38	.86				
TURF	38	.85				
HURF	38	1.27				
THURF	38	1.04				
URIF(TH)	3496	.93				
UAF	19	2.03				
TUAF	19	1.32				
HUAF	19	1.42				
THUAF	19	1.42				
UIAF(TH)	1748	1.13				
RAF	38	6.55	4.85*			
TRAF	38	1.85				
HRAF	38	1.24				
THRAF	38	2.11				
RIAF(TH)	3496	1.35				
URAF	38	1.34				
TURAF	38	.66				
HURAF	38	.83				
THURAF	38	1.09				
URIAF(TH)	3496	.84				

Table 2. ANOVA table for student teachers´ assessements after a self-confrontation experiment: Ego-pupil relation

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	24.56				
H	1	95.16	6.00*	.02	.07	.60
TH	1	94.45	5.95*	.02	.07	.40
I(TH)	92	15.87				
U	1	56.70	30.16**	.01	.16	>.99
TU	1	5.96				
HU	1	1.33				
THU	1	2.48				
UI(TH)	92	1.88				
R	2	98.47	50.24**	.02	.37	>.99
TR	2	4.95				
HR	2	2.31				
THR	2	.60				
RI(TH)	184	1.96				
A	1	.31				
TA	1	1.72				
HA	1	9.93				
THA	1	46.84				
IA(TH)	92	13.15				
UR	2	.38				
TUR	2	.18				
HUR	2	.90				
THUR	2	2.39				
URI(TH)	184	1.26				
UA	1	21.89	9.86**	.00	.14	>.75
TUA	1	.36				
HUA	1	.24				
THUA	1	.02				
UIA(TH)	92	2.22				
RA	2	72.74	38.90**	.03	.42	>.99
TRA	2	6.05	3.24*			
HRA	2	.15				
THRA	2	4.26				
RIA(TH)	184	1.87				
URA	2	.34				
TURA	2	1.41				
HURA	2	2.37				
THURA	2	3.30				
URIA(TH)	184	.98				
F	23	792.25	130.95**			
TF	23	5.06				
HF	23	13.40				
THF	23	12.31				
IF(TH)	2116	6.05				
UF	23	11.94	9.26**			
TUF	23	2.36				
HUF	23	1.51				
THUF	23	1.02				
UIF(TH)	2116	1.29				
RF	46	9.55	6.82*			
TRF	46	1.99				
HRF	46	1.73				
THRF	46	1.29				
RIF(TH)	4232	1.40				
AF	23	998.22	171.22**			
TAF	23	9.69				
HAF	23	17.74				
THAF	23	14.84				
IAF(TH)	2116	5.83				
URF	46	.87				
TURF	46	.98				
HURF	46	.67				
THURF	46	.57				
URIF(TH)	4232	.86				
UAF	23	10.83	8.66**			
TUAF	23	3.29				
HUAF	23	1.12				
THUAF	23	1.30				
UIAF(TH)	2116	1.25				
RAF	46	7.11				
TRAF	46	1.89				
HRAF	46	1.42				
THRAF	46	1.64				
RIAF(TH)	4232	1.32				
URAF	46	.81				
TURAF	46	.90				
HURAF	46	1.08				
THURAF	46	.78				
URIAF(TH)	4232	.80				

Table 3. ANOVA table for student teachers' assessments after a self-confrontation experiment: Ego-NPO relation

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	43.22				
H	1	63.51	4.12*	.01	.0[illegible]	.50
TH	1	68.48	4.44*	.01	.09	.59
I(TH)	92	15.42				
U	1	24.76	13.10**	.00	.11	.81
TU	1	1.24				
HU	1	.05				
THU	1	.36				
UI(TH)	92	1.89				
R	2	23.69	11.97**	.00	.18	>.99
TR	2	3.33				
HR	2	.50				
THR	2	.19				
RI(TH)	184	1.98				
A	1	2.127.38	359.36**	.37	.56	>.99
TA	1	17.87				
HA	1	.10				
THA	1	5.08				
IA(TH)	92	5.92				
UR	2	3.73	3.53*	.00	.14	.82
TUR	2	.32				
HUR	2	.09				
THUR	2	.34				
URI(TH)	184	1.05				
UA	1	12.82	7.82**	.00	.12	.58
TUA	1	7.36	4.49*	.00	.13	.58
HUA	1	.01				
THUA	1	1.61				
UIA(TH)	92	1.64				
RA	2	44.24	25.14**	.01	.37	>.99
TRA	2	.35				
HRA	2	3.42				
THRA	2	.42				
RIA(TH)	184	1.76				
URA	2	.38				
TURA	2	4.58	5.39**	.00	.34	.85
HURA	2	.78				
THURA	2	.81				
URIA(TH)	184	.84				

Table 3. (cont.)

Source	df	MS	F	$\hat{\omega}^2$	f	g
F	11	392.22	71.57**			
TF	11	7.43				
HF	11	4.58				
THF	11	20.78				
IF(TH)	1012	5.48				
UF	11	19.27	12.59**			
TUF	11	1.25				
HUF	11	1.62				
THUF	11	.59				
UIF(TH)	1012	1.53				
RF	22	16.36	13.09**			
TRF	22	.66				
HRF	22	1.97				
THRF	22	1.13				
RIF(TH)	2024	1.25				
AF	11	677.00	118.56**			
TAF	11	8.11				
HAF	11	9.78				
THAF	11	13.51				
IAF(TH)	1012	5.71				
URF	22	.98				
TURF	22	.75				
HURF	22	.77				
THURF	22	1.00				
URIF(TH)	2024	.81				
UAF	11	22.81	14.53**			
TUAF	11	2.85				
HUAF	11	1.60				
THUAF	11	[illegible]				
UIAF(TH)	1012	1.57				
RAF	22	10.77	8.55**			
TRAF	22	1.48				
URAF	22	.98				
THRAF	22	3.06				
RIAF(TH)	2024	1.26				
URAF	22	1.26				
TURAF	22	.68				
HURAF	22	.66				
THURAF	22	1.01				
URIAF(TH)	2024	.78				

Table 4. ANOVA table for student teachers' assessements after a self-confrontation experiment: Pupil-ego relation

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	35.56				
H	1	2.06				
TH	1	157.73	6.35**	.01	.11	.73
I(TH)	92	24.82				
U	1	1.13				
TU	1	1.80				
HU	1	.48				
THU	1	2.33				
UI(TH)	92	2.07				
R	2	.53				
TR	2	.67				
HR	2	.14				
THR	2	.38				
RI(TH)	184	2.82				
A	1	13.291.31	479.83**	.64	.65	>.99
TA	1	.20				
HA	1	73.79				
THA	1	175.03	6.33*	.01	.15	.72
IA(TH)	92	27.70				
UR	2	3.76				
TUR	2	.38				
HUR	2	1.99				
THUR	2	2.33				
URI(TH)	184	1.48				
UA	1	15.75	7.92**	.00	.12	.58
TUA	1	1.17				
HUA	1	.01				
THUA	1	3.47				
UIA(TH)	92	1.99				
RA	2	18.42	4.75**	.00	.16	.85
TRA	2	.63				
HRA	2	.70				
THRA	2	1.58				
RIA(TH)	184	3.88				
URA	2	3.27				
TURA	2	1.19				
HURA	2	6.64	4.00**	.00	.30	.89
THURA	2	.04				
URIA(TH)	184	1.66				

Table 4. (cont.)

Source	df	MS	F	$\hat{\omega}^2$	f	g
F	9	406.86	84.41**			
TF	9	2.11				
HF	9	4.01				
THF	9	5.48				
IF(TH)	828	4.82				
UF	9	3.90	4.33*			
TUF	9	1.39				
HUF	9	3.64	4.04*			
THUF	9	1.90				
UIF(TH)	828	.90				
RF	18	1.67				
TRF	18	1.41				
HRF	18	.52				
THRF	18	1.13				
RIF(TH)	1656	1.05				
AF	9	951.84	198.30**			
TAF	9	1.67				
HAF	9	3.80				
THAF	9	7.02				
IAF(TH)	828	4.80				
URF	18	.73				
TURF	18	.96				
HURF	18	.85				
THURF	18	.50				
URIF(TH)	1656	.69				
UAF	9	3.16				
TUAF	9	1.19				
HUAF	9	1.16				
THUAF	9	.83				
UIAF(TH)	828	.96				
RAF	18	3.28				
TRAF	18	.94				
HRAF	18	1.11				
THRAF	18	1.70				
RIAF(TH)	1656	1.23				
URAF	18	.78				
TURAF	18	1.37				
HURAF	18	1.00				
THURAF	18	.63				
URIAF(TH)	1656	.77				

Table 5. ANOVA table for student teachers' assessments after a self-confrontation experiment: Pupil-pupil relation

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	60.50	9.22**	.02	.09	.68
H	1	71.00	10.82**	.02	.10	.77
TH	1	.25				
I(TH)	92	6.56				
U	1	12.71	5.15*	.00	.07	.60
TU	1	8.68				
HU	1	2.92				
THU	1	.95				
UI(TH)	92	2.47				
R	2	12.23	6.79**	.00	.14	.92
TR	2	3.66				
HR	2	4.17				
THR	2	4.54				
RI(TH)	184	1.80				
A	1	406.13	48.99**	.11	.21	>.99
TA	1	1.06				
HA	1	81.81	9.87**	.02	.14	.75
THA	1	10.50				
IA(TH)	92	8.29				
UR	2	.16				
TUR	2	.52				
HUR	2	2.23				
THUR	2	1.96				
URI(TH)	184	1.17				
UA	1	18.50	9.30**	.00	.13	.66
TUA	1	15.36	7.72**	.00	.17	.80
HUA	1	.20				
THUA	1	.68				
UIA(TH)	92	1.99				
RA	2	4.05	3.46*	.00	.13	.75
TRA	2	1.17				
HRA	2	.78				
THRA	2	4.43				
RIA(TH)	184	1.28				
URA	2	.01				
TURA	2	1.47				
HURA	2	1.42				
THURA	2	.49				
URIA(TH)	184	.94				

Table 5. (cont.)

Source	df	MS	F	$\hat{\omega}^2$	f	g
F	3	85.82	9.40**			
TF	3	3.62				
HF	3	35.82	3.92*			
THF	3	33.24				
IF(TH)	276	9.13				
UF	3	29.95	14.33**			
TUF	3	5.60				
HUF	3	3.70				
THUF	3	3.10				
UIF(TH)	276	2.09				
RF	6	6.56				
TRF	6	1.90				
HRF	6	2.48				
THRF	6	4.29				
RIF(TH)	552	1.70				
AF	3	734.08	115.06**			
TAF	3	14.13				
HAF	3	15.95				
THAF	3	6.13				
IAF(TH)	276	6.38				
URF	6	2.26				
TURF	6	1.35				
HURF	6	.49				
THURF	6	.52				
URIF(TH)	552	1.11				
UAF	3	14.62	9.14**			
TUAF	3	10.35	6.47*			
HUAF	3	4.17				
THUAF	3	1.14				
UIAF(TH)	276	1.60				
RAF	6	7.82	5.21*			
TRAF	6	2.09				
HRAF	6	.19				
THRAF	6	2.08				
RIAF(TH)	552	1.50				
URAF	6	.99				
TURAF	6	1.00				
HURAF	6	1.22				
THURAF	6	1.22				
URIAF(TH)	552	.96				

Table 6. ANOVA table for student teachers' assessments after a self-confrontation experiment: Pupil-NPO relation

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	.50				
H	1	49.58	4.52*	.01	.06	.50
TH	1	52.53	4.79*	.01	.09	.59
I(TH)	92	10.97				
U	1	.42				
TU	1	15.82	6.43*	.00	.11	.[illegible]3
HU	1	6.72				
THU	1	1.32				
UI(TH)	92	2.46				
R	2	58.44	25.41**	.01	.26	>.99
TR	2	1.82				
HR	2	2.44				
THR	2	2.46				
RI(TH)	184	2.30				
A	1	558.34	94.16**	.14	.29	>.99
TA	1	1.76				
HA	1	67.09	11.31**	.02	.14	.75
THA	1	28.44	4.80*	.01	.13	.59
IA(TH)	92	5.93				
UR	2	.36				
TUR	2	1.33				
HUR	2	.48				
THUR	2	1.14				
URI(TH)	184	1.18				
UA	1	.73				
TUA	1	2.53				
HUA	1	17.26	8.76**	.00	.18	.84
THUA	1	.42				
UIA(TH)	92	1.97				
RA	2	60.77	36.61**	.01	.32	>.99
TRA	2	.77				
HRA	2	1.39				
THRA	2	3.52				
RIA(TH)	184	1.61				
URA	2	.09				
TURA	2	.21				
HURA	2	3.59	3.59*	.00	.44	.99
THURA	2	.62				
URIA(TH)	184	1.00				

Table 6. (cont.)

Source	df	MS	F	$\hat{\omega}^2$	f	g
F	3	475.01	127.35*			
TF	3	4.58				
HF	3	2.52				
THF	3	3.09				
IF(TH)	276	3.73				
UF	3	7.46	4.36*			
TUF	3	1.75				
HUF	3	5.85				
THUF	3	2.88				
UIF(TH)	276	1.71				
RF	6	3.48				
TRF	6	.64				
HRF	6	.65				
THRF	6	.68				
RIF(TH)	552	1.15				
AF	3	639.80	172.45**			
TAF	3	5.27				
HAF	3	6.86				
THAF	3	7.06				
IAF(TH)	276	3.71				
URF	6	1.51				
TURF	6	.74				
HURF	6	.67				
THURF	6	1.70				
URIF(TH)	552	.94				
UAF	3	.79				
TUAF	3	3.08				
HUAF	3	.50				
THUAF	3	.57				
UIAF(TH)	276	1.05				
RAF	6	7.89	7.17**			
TRAF	6	1.09				
HRAF	6	1.73				
THRAF	6	.20				
RIAF(TH)	552	1.10				
URAF	6	.15				
TURAF	6	1.90				
HURAF	6	.53				
THURAF	6	.35				
URIAF(TH)	552	.76				

Table 1. ANOVA table for statement 1: I observe myself during the recording (1) not at all in the same way as other people, (7) in exactly the same way as other people

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	.75				
H	1	.44				
TH	1	27.63	4.09*	.02	.15	.55
I(TH)	92	6.57				
U	1	1.90				
TU	1	.21				
HU	1	.21				
THU	1	.44				
UI(TH)	92	.65				
R	1	.13				
TR	1	10.34				
HR	1	.75				
THR	1	4.38				
RI(TH)	92	2.78				
RU	1	3.57	6.09*	.00	.18	.70
TRU	1	1.15				
HRU	1	.75				
THRU	1	.13				
RUI(TH)	92	.59				

Table 2. ANOVA table for statement 2: When I see myself during the viewing, I am (1) much more critical of myself than of others, (7) much less critical of myself than of others

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	.				
H	1	.84				
TH	1	4.17				
I(TH)	92	2.66				
U	1	.51				
TU	1	.04				
HU	1	.38				
THU	1	.26				
UI(TH)	92	.39				
R	1	1.26				
TR	1	5.04	4.84*	.01	.16	.60
HR	1	.38				
RHV	1	.51				
RI(TH)	92	1.04				
RU	1	.38				
TRU	1	.01				
HRU	1	.01				
THRU	1	.04				
RUI(TH)	92	.29				

Table 3. ANOVA table for statement 3: When I see myself during the viewing, (1) I find it very difficult to recognise myself, (7) I find it very easy to recognise myself

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	17.94				
H	1	14.65				
TH	1	3.57				
I(TH)	92	6.19				
U	1	3.19				
TU	1	.32				
HU	1	.02				
THU	1	.00				
UI(TH)	92	.87				
R	1	.02				
TR	1	13.88	5.69*	.01	.17	.65
HR	1	.59				
THR	1	1.38				
RI(TH)	92	2.44				
RU	1	.13				
TRU	1	.75				
HRU	1	.75				
THRU	1	.07				
RUI(TH)	92	.83				

Table 4. ANOVA table for statement 4: When I see myself during the viewing, I am (1) completely dissatisfied, (7) completely satisfied

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	1.76				
H	1	6.00				
TH	1	8.76				
I(TH)	92	3.18				
U	1	.84				
TU	1	6.00	5.00*	.01	.16	.60
HU	1	.51				
THU	1	2.67				
UI(TH)	92	1.20				
R	1	15.84	14.00**	.02	.19	.87
TR	1	.67				
HR	1	1.76				
THR	1	3.38				
RI(TH)	92	1.12				
RU	1	.38				
TRU	1	.26				
HRU	1	.04				
THRU	1	.01				
RUI(TH)	92	.74				

Table 5. ANOVA table for statement 5: When I see myself during the viewing, I concentrate my attention (1) wholly on the details, (7) wholly on the overall impression

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	.13				
H	1	5.75				
TH	1	.75				
I(TH)	92	4.13				
U	1	.00				
TU	1	.44				
HU	1	.21				
THU	1	.59				
UI(TH)	92	.81				
R	1	7.32	3.98*	.01	.10	.52
TR	1	2.84				
HR	1	.02				
THR	1	2.19				
RI(TH)	92	1.84				
RU	1	.90				
TRU	1	.12				
HRU	1	.00				
THRU	1	.13				
RUI(TH)	92	.89				

Table 6. ANOVA table for statement 6: When during the viewing I see how I behave, I think that I am (1) the exact opposite to what I had expected, (7) exactly as I had expected

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	8.46				
H	1	5.27				
TH	1	.32				
I(TH)	92	3.47				
U	1	6.25	9.19**	.01	.16	.72
TU	1	.13				
HU	1	.21				
THU	1	.32				
UI(TH)	92	.68				
R	1	.00				
TR	1	1.15				
HR	1	.21				
THR	1	2.84				
RI(TH)	92	1.28				
RU	1	3.57	5.85*	.01	.17	.65
TRU	1	.94				
HRU	1	.02				
THRU	1	.59				
RUI(TH)	92	.61				

Table 7. ANOVA table for statement 7: I find viewing myself on the TV screen (1) very unpleasant, (7) very pleasant

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	1.50				
H	1	14.26	4.27*	.02	.11	.58
TH	1	2.34				
I(TH)	92	3.34				
U	1	.00				
TU	1	1.50				
HU	1	.01				
THU	1	.26				
UI(TH)	92	.44				
R	1	.00				
TR	1	.00				
HR	1	.01				
THR	1	.84				
RI(TH)	92	.57				
RU	1	.38				
TRU	1	.04				
HRU	1	.09				
THRU	1	.84				
RUI(TH)	92	.32				

Table 8. ANOVA table for statement 8: During this viewing my attention was caught by single details (1) very often, (7) very seldom

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	5.27				
H	1	13.13				
TH	1	4.38				
I(TH)	92	4.46				
U	1	17.94	19.93**	.02	.23	.96
TU	1	1.90				
HU	1	.75				
THU	1	.21				
UI(TH)	92	.90				
R	1	2.50				
TR	1	6.77	4.51*	.01	.14	.50
HR	1	5.75				
THR	1	3.57				
RI(TH)	92	1.75				
RU	1	.44				
TRU	1	.59				
HRU	1	.02				
THRU	1	1.38				
RUI(TH)	92	.85				

Table 9. ANOVA table for statement 9: I consider the viewing to be for my teacher training (1) completely meaningless, (7) very instructive

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	.59				
H	1	.59				
TH	1	56.27	13.18**	.06	.24	.77
I(TH)	92	4.82				
U	1	.00				
TU	1	.32				
HU	1	.00				
THU	1	.02				
UI(TH)	92	.44				
R	1	16.25	8.20**	.02	.15	.67
TR	1	.32				
HR	1	.07				
THR	1	1.38				
RI(TH)	92	1.98				
RU	1	1.63				
TRU	1	.07				
HRU	1	.21				
THRU	1	.07				
RUI(TH)	92	.72				

Table 10. ANOVA table for statement 10: When I see myself during the viewing, my conception of myself as a person is (1) completely unchanged, (7) completely changed

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	10.34				
H	1	11.69				
TH	1	.75				
I(TH)	92	4.31				
U	1	.59				
TU	1	.75				
HU	1	1.90				
THU	1	1.15				
UI(TH)	92	1.05				
R	1	3.96				
TR	1	.59				
HR	1	2.84				
THR	1	.13				
RI(TH)	92	1.76				
RU	1	.13				
TRU	1	.02				
HRU	1	.07				
THRU	1	.21				
RUI(TH)	92	1.01				

Table 11. ANOVA table for statement 11: During this viewing my opinion of my lesson is (1) completely changed, (7) completely unchanged

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	2.84				
H	1	7.32				
TH	1	9.69				
I(TH)	92	5.11				
U	1	4.38				
TU	1	4.82				
HU	1	2.84				
THU	1	2.50				
UI(TH)	92	1.44				
R	1	34.44	13.72**	.03	.19	.87
TR	1	.00				
HR	1	1.38				
THR	1	5.75				
RI(TH)	92	2.51				
RU	1	.32				
TRU	1	.75				
HRU	1	.75				
THRU	1	.21				
RUI(TH)	92	1.28				

Table 1. ANOVA table for the differences between the assessors' mean assessment and the student teachers' self-assessment. Variable domain 1: Ego-ego relation: student teachers' sixth term

Source	df	MS	F	$\hat{\omega}^2$	f	g
T (CCTV/VR)	1	1.35	.12			
H (tutoring)	1	22.01	2.00			
TH	1	54.09	4.91*	.0[illegible]	.16	.60
I(TH)	92	11.02				
U (micro-lesson)	1	25.59	10.89**	.09	.17	.77
UT	1	.86	.37			
UH	1	9.95	4.23*	.03	.15	.55
UTH	1	1.03	.44			
UI(TH)	9[illegible]	2.35				
A (perception/evaluation)	1	89.5[illegible]	12.28**	.10	.18	.82
AT	1	1.8[illegible]	.25			
AH	1	15.46	2.12			
ATH	1	42.44	5.82*	.04	.25	.69
AI(TH)	92	7.29				
AU	1	1.73	1.18			
AUT	1	.18	.12			
AUH	1	.70	.48			
AUTH	1	1.37	.94			
AUI(TH)	92	1.46				
V (variables)	19	316.78	98.07**			
TV	19	4.26	1.32			
HV	19	2.24	.69			
THV	19	13.69	4.24*			
IV(TH)	1748	3.23				
UV	19	2.62	2.26			
UTV	19	.85	.73			
UHV	19	1.58	1.36			
UTHV	19	1.91	1.65			
UIV(TH)	1748	1.16				
AV	19	93.76	33.13**			
ATV	19	4.47	1.58			
AHV	19	3.38	1.19			
ATHV	19	11.68	4.13*			
AIV(TH)	1748	2.83				
AUV	19	1.49	1.46			
AUTV	19	.38	.37			
AUHV	19	.61	.60			
AUTHV	19	-1.15	1.13			
AUIV(TH)	1748	1.02				

Table 2. ANOVA table for the differences between the assessors' mean assessment and the student teachers' self-assessment. Variable domain 2: Ego-pupil relation: student teachers' sixth term

Source	df	MS	F	$\hat{\omega}^2$	f	g
T (CCTV/VR)	1	.68	.10			
H (tutoring)	1	41.56	6.28*	.05	.13	.71
TH	1	2.13	.32			
(TH)	92	6.62				
U (micro-lesson)	1	1.67	.86			
UT	1	.61	.31			
UH	1	.38	.19			
UTH	1	.50	.26			
UI(TH)	92	1.95				
A (perception/evaluation)	1	1005.35	144.65**	.56	.61	>.99
AT	1	15.74	2.26			
AH	1	.40	.06			
ATH	1	101.69	14.63**	.05	.39	.96
AI(TH)	92	6.95				
AU	1	.42				
AUT	1	.68				
AUH	1	9.20	6.09*	.05	.26	.48
AUTH	1	.07				
AUI(TH)	92	1.51				
V (variables)	23	157.48	51.13**			
TV	23	2.72	.88			
HV	23	4.47	1.45			
THV	23	9.73	3.16*			
IV(TH)	2116	3.08				
UV	23	2.52	2.31			
UTV	23	1.98	1.82			
UHV	23	2.20	2.02			
UTHV	23	1.08	.99			
UIV(TH)	2116	1.09				
AV	23	171.98	54.42**			
ATV	23	2.73	.86			
AHV	23	2.57	.81			
ATHV	23	10.71	3.39			
AIV(TH)	2116	3.16				
AUV	23	2.10	1.79			
AUTV	23	1.32	1.13			
AUHV	23	2.59	2.21			
AUTHV	23	1.79	1.53			
AUIV(TH)	2116	1.17				

Table 3. ANOVA table for the differences between the assessors' mean assessment and the student teachers' self-assessment. Variable domain 3: Ego-NPO relation: student teachers' sixth term

Source	df	MS	F	$\hat{\omega}^2$	f	g
T (CCTV/VR)	1	1.32	.21			
H (tutoring)	1	15.11	2.36			
TH	1	28.83	4.51*	.04	.15	.56
I(TH)	92	6.39				
U (micro-lesson)	1	.85	.80			
UT	1	.25	.24			
UH	1	2.33	1.20			
UTH	1	.20	.19			
UI(TH)	92	1.06				
A (perception/evaluation)	1	193.92	42.71**	.30	.33	>.99
AT	1	14.14	3.11			
AH	1	.56	.12			
ATH	1	11.93	2.63			
AI(TH)	92	4.54				
AU	1	2.83	2.38			
AUT	1	.58	.49			
AUH	1	2.24	1.88			
AUTH	1	1.15	.97			
AUI(TH)	92	1.19				
V (variables)	11	61.21	20.82**			
TV	11	2.45	.83			
HV	11	2.75	.94			
THV	11	7.87	2.68			
IV(TH)	1012	2.94				
UV	11	2.99	2.96			
UTV	11	1.14	1.13			
UHV	11	1.25	1.24			
UTHV	11	1.54	1.52			
UIV(TH)	1012	1.01				
AV	11	57.13	18.19**			
ATV	11	3.97	1.26			
AHV	11	5.37	1.71			
ATHV	11	16.65	5.30*			
AIV(TH)	1012	3.14				
AUV	11	1.53	1.46			
AUTV	11	.59	.56			
AUHV	11	.33	.31			
AUTHV	11	1.26	1.20			
AUIV(TH)	1012	1.05				

Table 4. ANOVA table for the differences between the assessors' mean assessment and the student teachers' self-assessment. Variable domain 4: Pupil-ego relation: student teachers' sixth term

Source	df	MS	F	$\hat{\omega}^2$	f	g
T (CCTV/VR)	1	11.29	1.16			
H (tutoring)	1	.98	.10			
TH	1	83.49	8.55**	.07	.21	.62
I(TH)	92	9.77				
U (micro-lesson)	1	.14	.11			
UT	1	.41	.34			
UH	1	.14	.11			
UTH	1	1.20	.98			
UI(TH)	92	1.22				
A (perception/evaluation)	1	8.63	.69			
AT	1	.14	.01			
AH	1	20.42	1.62			
ATH	1	120.77	9.59**	.08	.32	.70
AI(TH)	92	12.59				
AU	1	1.50	1.15			
AUT	1	.04	.03	.06		
AUH	1	9.20	7.08**		.27	.92
AUTH	1	5.78	4.45*	.03	.31	(.69)
AUI(TH)	92	1.30				
V (variables)	9	87.01	40.85**			
TV	9	1.27	.60			
HV	9	1.20	.56			
THV	9	13.50	6.34			
IV(TH)	828	2.13				
UV	9	1.04	1.24			
UTV	9	.72	.86			
UHV	9	1.56	1.86			
UTHV	9	.16	.19			
UIV(TH)	828	.84				
AV	9	45.45	16.90**			
ATV	9	1.93	.72			
AHV	9	1.56	.58			
ATHV	9	10.82	4.02*			
AIV(TH)	828	2.69				
AUV	9	1.00	1.14			
AUTV	9	1.47	1.67			
AUHV	9	1.34	1.52			
AUTHV	9	.30	.34			
AUIV(TH)	828	.88				

Table 5. ANOVA table for the differences between the assessors' mean assessment and the student teachers' self-assessment. Variable domain 5: Pupil-pupil relation: student teachers' sixth term

Source	df	MS	F	$\hat{\omega}^2$	f	g
T (CCTV/VR)	1	18.46	5.48*	.04	.12	.64
H (tutoring)	1	5.11	1.52			
TH	1	2.96	.88			
I(TH)	92	3.37				
U (micro-lesson)	1	.39	.20			
UT	1	.65	.34			
UH	1	4.97	2.56			
UTH	1	1.67	.86			
UI(TH)	92	1.94				
A (perception/evaluation)	1	29.43	8.79**	.07	.15	.67
AT	1	.42	.13			
AH	1	10.27	3.07			
ATH	1	.45	.13			
AI(TH)	97	3.35				
AU	1	1.41	1.08			
AUT	1	.30	.23			
AUH	1	.77	.59			
AUTH	1	.08	.06			
AUI(TH)	92	1.30				
V (variables)	3	319.44	69.44**			
TV	3	1.77	.38			
HV	3	6.60	1.43			
THV	3	29.79	6.48*			
IV(TH)	276	4.60	6.48*			
UV	3	4.81	2.38			
UTV	3	1.47	.73			
UHV	3	5.72	2.83			
UTHV	3	2.41	1.19			
UIV(TH)	276	2.02				
AV	3	190.51	53.51**			
ATV	3	2.20	.62			
AHV	3	2.08	.58			
ATHV	3	14.51	4.08			
AIV(TH)	276	3.56				
AUV	3	.62	.39			
AUTV	3	.45	.29			
AUHV	3	7.94	5.06*			
AUTHV	3	.76	.48			
AUIV(TH)	276	1.57				

Table 6. ANOVA table for the differences between the assessors' mean assessment and the student teachers' self-assessment. Variable domain 6: Pupil-NPO relation: student teachers' sixth term

Source	df	MS	F	$\hat{\omega}^2$	f	g
T (CCTV/VR)	1	1.96	.40			
H (tutoring)	1	25.47	5.14*	.04	.12	.64
TH	1	8.34	1.68			
I(TH)	92	4.96				
U (micro-lesson)	1	.04	.02			
UT	1	2.91	1.68			
UH	1	2.36	1.36			
UTH	1	1.84	1.06			
UI(TH)	92	1.73				
A (perception/evaluation)	1	365.63	79.66**	.42	.46	>.99
AT	1	.01	.00			
AH	1	21.42	4.67*	.02	.16	.60
ATH	1	55.36	12.06**	.06	.35	.79
AI(TH)	92	4.59				
AU	1	2.95	1.59			
AUT	1	.04	.02			
AUH	1	2.72	1.46			
AUTH	1	1.53	.82			
AUI(TH)	92	1.86				
V (variables)	3	15.50	7.75			
TV	3	1.55	.78			
HV	3	2.99	1.50			
THV	3	1.48	.74			
IV(TH)	276	2.00				
UV	3	1.87	1.57			
UTV	3	1.48	1.24			
UHV	3	3.32	2.79			
UTHV	3	1.16	.97			
UIV(TH)	276	1.19				
AV	3	29.85	11.61**			
ATV	3	6.14	2.39			
AHV	3	2.65	1.03			
ATHV	3	5.66	2.20			
AIV(TH)	276	2.57				
AUV	3	2.31	2.03			
AUTV	3	2.85	2.50			
AUHV	3	.14	.12			
AUTHV	3	.62	.54			
AUIV(TH)	276	1.14				

Table 1. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during second and sixth terms. Ego-ego relation. Micro-lessons 1 and 2, perception

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side Vk	 R_{dk}	 R_t	Term 6 Right side Vp	 R_{dp}	 R_t
Micro-lesson 1											
1	.83	.69	565.34	361	.000	.12	.08	.23	.14	.10	.29
2	.81	.66	477.23	324	.001	.09	.06	.17	.07	.05	.14
3	.77	.60	395.30	289	.005	.05	.03	.09	.05	.03	.09
4	.74	.55	327.00	256	.013	.06	.03	.09	.05	.03	.09
5	.71	.51	267.09	225	.029	.06	.03	.09	.06	.03	.09
6	.67	.45	213.93	196	.058	.06	.03	.09	.06	.03	.09
7	.64	.41	169.51	169	.105	.05	.02	.06	.05	.02	.06
8	.62	.38	130.08	144	.178	.06	.02	.06	.05	.02	.06
9	.53	.28	94.12	121	.287	.04	.01	.03	.04	.01	.03
10	.47	.22	68.91	100	.401	.04	.01	.03	.06	.01	.03
11	.40	.16	50.40	81	.513	.05	.01	.03	.05	.01	.03
12	.39	.15	37.54	64	.608	.04	.01	.03	.03	.01	.03
13	.33	.11	24.92	49	.718	.04	.00	.00	.04	.00	.00
14	.32	.10	15.97	36	.809	.04	.00	.00	.05	.00	.00
15	.23	.05	7.81	25	.901	.06	.00	.00	.03	.00	.00
16	.17	.03	3.80	16	.950	.04	.00	.00	.05	.00	.00
17	.13	.02	1.50	9	.980	.00	.00	.00	.06	.00	.01
18	.05	.00	.23	4	.996	.03	.00	.00	.04	.00	.00
19	.01	.00	.01	1	.999	.04	.00	.00	.04	.80	.00
						1.00	.35	1.00	1.00	.35	1.00
Wilks Λ = .000											
Micro-lesson 2											
1	.88	.77	629.35	361	.000	.14	.11	.28	.12	.10	.26
2	.86	.73	519.41	324	.001	.11	.08	.21	.10	.08	.21
3	.79	.62	419.44	289	.003	.05	.03	.08	.04	.02	.05
4	.77	.59	346.12	256	.010	.06	.04	.10	.05	.03	.08
5	.70	.49	278.59	225	.025	.05	.03	.08	.08	.04	.11
6	.66	.43	227.36	196	.049	.05	.02	.05	.04	.02	.05
7	.63	.39	185.04	169	.086	.03	.01	.03	.04	.02	.05
8	.59	.34	147.46	144	.141	.06	.02	.05	.08	.03	.08
9	.54	.30	115.63	121	.216	.05	.01	.03	.04	.01	.03
10	.51	.26	89.23	100	.306	.05	.01	.03	.06	.02	.05
11	.50	.25	66.12	81	.416	.05	.01	.03	.04	.01	.03
12	.41	.17	44.80	64	.552	.04	.01	.03	.06	.01	.03
13	.35	.13	30.90	49	.664	.04	.01	.03	.03	.00	.00
14	.33	.11	20.75	36	.759	.05	.01	.03	.04	.00	.00
15	.26	.07	12.11	25	.851	.04	.00	.00	.03	.00	.00
16	.24	.06	6.70	16	.915	.05	.00	.00	.02	.00	.00
17	.13	.02	2.08	9	.972	.04	.00	.00	.04	.00	.00
18	.11	.01	.87	4	.988	.03	.00	.00	.05	.00	.00
19	.01	.00	.01	1	.999	.03	.00	.00	.05	.00	.00
						1.00	.39	1.00	1.00	.38	1.00
Wilks Λ = .000											

Table 2. Canonical component structure. Student teachers' assessments during second and sixth terms. Ego-ego relation. Micro-lesson 1, perception

		$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$	$t2_6$	$t6_6$	$t2_7$	$t6_7$
1	Emotional state	.69	.68	.68	.67	.27	.26	.49	.58	.16	.44	.27	.31	.44	.18
2	Manner	-.03	.07	.06	.09	.33	.27	.24	.16	.26	.05	.22	.01	.21	.02
3	Patience with pupils	.24	.26	-.25	.00	.09	.14	-.02	.07	-.31	-.37	-.45	-.44	-.14	-.13
4	Sense of humor	.20	.07	.07	-.17	.13	.07	-.04	-.17	.02	-.02	-.32	-.30	-.34	-.28
5	Voice variation	.19	.05	-.07	.02	.19	.08	-.17	.01	.28	.21	.26	.08	.46	.53
6	Clarity of speech	.00	.23	.22	.07	.05	.01	-.15	-.14	.20	.14	-.08	.16	.36	.40
7	Vocal pitch	-.00	-.14	-.01	-.13	.01	-.07	-.20	-.10	.11	.28	-.17	-.28	.11	.05
10	Posture	.31	-.05	.22	.11	-.18	-.28	.17	.42	.25	.08	.16	.11	.25	.29
12	Use of gestures	.06	.09	-.06	.10	.15	-.09	.20	.36	.01	-.19	-.01	-.11	.08	-.10
13	Fiddling with objects (rings etc.)	-.09	-.18	.04	.07	-.21	-.04	-.33	-.03	.15	.28	-.09	.50	.13	.31
14	Factual knowledge	.15	.36	.03	.09	-.57	-.48	.01	-.26	.02	.00	.11	.03	-.07	-.34
15	Use of stereotype expressions	.19	.25	.31	-.20	.09	.43	-.30	.06	-.04	.06	.23	.17	-.09	-.03
16	Use of incomplete sentences	-.19	-.01	.08	-.05	.16	-.21	-.02	-.17	-.39	-.41	-.18	-.14	.12	-.07
17	Use of grammatically incorrect expressions	.01	.12	.09	.35	-.10	-.16	-.16	-.02	.33	.07	.26	.29	.11	.15
18	Dialectal accent	.11	.01	.00	.02	.51	-.15	.17	.16	.51	.43	.15	-.18	-.18	-.18
19	Use of difficult concepts without explanations	.26	.26	.14	.48	.07	-.15	-.36	-.25	-.03	.08	-.08	.08	-.20	.03
20	Mental blocks (black outs)	-.11	.15	-.05	.16	.10	.06	-.14	-.13	.22	.09	.39	-.13	.21	-.08
21	Legibility of handwriting on blackboard	-.10	-.16	.39	.20	-.11	.46	.36	-.14	.04	.16	.06	-.02	-.15	-.06
22	Use of rhetorical questions	.28	-.10	.27	.04	.06	.05	-.13	-.23	.12	.11	-.30	-.21	-.09	-.23

Table 3. Canonical component structure. Student teachers' assessments during second and sixth terms. Ego-ego relation. Micro-lesson 2, perception

		$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$	$t6_2$	$t6_6$	$t2_7$	$t6_7$
1	Emotional state	.49	.57	.65	.68	-.07	.05	.48	.47	.57	.76	.44	.39	.62	.30
2	Manner	.01	.19	.36	.34	.42	.52	.01	-.06	.31	.13	.21	.28	.28	.24
3	Patience with pupils	.50	.18	.38	-.03	.24	.07	.13	.14	-.23	-.13	.22	.13	-.20	-.21
4	Sense of humor	-.12	-.11	-.19	.06	-.42	-.25	-.27	-.19	-.17	-.03	-.23	-.12	-.08	.05
5	Voice variation	-.12	.23	.04	.25	-.21	.09	-.24	.02	-.23	.01	.05	.19	-.06	-.10
6	Clarity of speech	.17	.07	-.04	-.10	.18	.24	.22	.15	-.07	-.07	.04	.06	-.09	.03
7	Vocal pitch	-.03	-.24	.05	-.09	.22	.04	.40	.49	-.10	-.08	-.25	.17	-.38	-.24
10	Posture	.33	.40	.24	.29	.06	-.20	.16	.02	.17	.24	.21	.01	-.15	-.07
12	Use of gestures	.11	.10	.31	-.06	-.03	.09	-.02	.25	-.33	-.15	-.17	.21	-.02	.12
13	Fiddling with objects (rings etc.)	.09	-.07	.19	.13	-.15	-.30	-.22	-.24	-.16	-.06	.07	-.24	-.28	-.36
14	Factual knowledge	.27	.24	.07	-.13	-.30	-.23	-.05	-.12	-.07	.05	-.33	-.41	-.34	-.20
15	Use of stereotype expressions	.06	.38	-.13	.21	.44	.35	.19	.31	-.13	-.21	-.06	-.16	.04	-.11
16	Use of incomplete sentences	.10	.13	.08	.13	.07	-.07	.16	.29	-.17	-.02	-.04	-.05	.13	.24
17	Use of grammatically incorrect expressions	.22	-.07	-.01	-.07	.27	.22	-.38	-.21	-.08	.14	-.08	.29	.02	.19
18	Dialectal accent	.01	.24	.06	.27	.27	-.01	.17	-.06	-.36	-.28	.08	.00	.05	.18
19	Use of difficult concepts without explanations	-.08	.00	.15	.20	.08	.15	.13	-.01	.03	-.08	-.27	-.14	-.08	.05
20	Mental blocks (black outs)	-.09	-.15	.03	-.15	-.02	.49	.07	-.03	.20	.12	.53	.28	-.08	.25
21	Legibility of handwriting on blackboard	.39	.04	.02	-.07	-.00	.02	-.22	.02	.19	.35	-.08	.41	-.02	.54
22	Use of rhetorical questions	.15	-.07	-.14	-.09	-.06	.25	.19	-.32	-.05	-.05	.16	.11	.30	-.25

Table 4. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during second and sixth terms. Ego-ego relation. Micro-lessons 1 and 2, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side Vk	R_{dk}	R_t	Term 6 Right side Vp	R_{dp}	R_t
Micro-lesson 1											
1	.83	.68	518.90	361	.001	.05	.04	.14	.05	.03	.10
2	.77	.59	431.96	324	.003	.11	.06	.21	.10	.06	.21
3	.75	.57	365.49	289	.007	.07	.04	.14	.04	.03	.10
4	.71	.51	302.12	256	.018	.06	.03	.10	.06	.03	.10
5	.67	.45	248.78	225	.037	.03	.02	.07	.04	.02	.07
6	.60	.37	203.52	196	.067	.05	.02	.07	.03	.01	.03
7	.59	.35	169.20	169	.106	.05	.02	.07	.05	.02	.07
8	.58	.34	136.65	144	.163	.05	.02	.07	.06	.02	.07
9	.53	.29	105.63	121	.246	.05	.02	.07	.04	.01	.03
10	.47	.22	80.26	100	.345	.04	.01	.03	.08	.02	.07
11	.46	.21	61.53	81	.442	.04	.01	.03	.06	.01	.03
12	.44	.20	43.65	64	.561	.06	.01	.03	.04	.01	.03
13	.34	.12	27.21	49	.697	.08	.01	.03	.08	.00	.00
14	.30	.09	17.80	36	.790	.04	.01	.03	.05	.00	.00
15	.25	.06	10.74	25	.867	.05	.00	.00	.05	.00	.00
16	.21	.04	5.74	16	.926	.04	.00	.00	.03	.00	.00
17	.14	.02	2.31	9	.969	.05	.00	.00	.05	.00	.00
18	.10	.01	.81	4	.989	.05	.00	.00	.05	.00	.00
19	.01	.00	.00	1	.100	.03	.00	.00	.04	.00	.00
						1.00	.29	1.00	1.00	.29	1.00

Wilks Λ = .001

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side Vk	R_{dk}	R_t	Term 6 Right side Vp	R_{dp}	R_t
Micro-lesson 2											
1	.81	.65	477.44	361	.001	.08	.05	.16	.08	.05	.16
2	.79	.62	398.16	324	.005	.10	.06	.19	.11	.07	.22
3	.73	.53	325.49	289	.013	.07	.04	.13	.06	.03	.09
4	.71	.51	269.04	256	.028	.07	.04	.13	.08	.04	.13
5	.68	.46	215.75	225	.057	.06	.03	.10	.08	.03	.09
6	.66	.44	169.79	196	.105	.04	.02	.07	.06	.03	.09
7	.60	.35	126.29	169	.187	.07	.03	.10	.07	.03	.09
8	.53	.28	93.33	144	.290	.04	.01	.03	.03	.01	.03
9	.45	.20	68.60	121	.403	.05	.01	.03	.04	.01	.03
10	.43	.19	51.57	100	.505	.05	.01	.03	.05	.01	.03
11	.37	.14	36.00	81	.626	.07	.01	.03	.05	.01	.03
12	.33	.11	24.89	64	.719	.04	.00	.00	.03	.00	.00
13	.32	.10	16.38	49	.805	.03	.00	.00	.04	.00	.00
14	.21	.05	8.35	36	.895	.05	.00	.00	.03	.00	.00
15	.17	.03	4.81	25	.938	.04	.00	.00	.05	.00	.00
16	.16	.03	2.58	16	.966	.03	.00	.00	.03	.00	.00
17	.08	.01	.67	9	.991	.03	.00	.00	.04	.00	.00
18	.04	.00	.18	4	.997	.04	.00	.00	.03	.00	.00
19	.03	.00	.08	1	.998	.04	.00	.00	.03	.00	.00
						1.00	.31	1.00	1.00	.32	1.00

Wilks Λ = .002

Table 5. Canonical component structure. Student teachers' assessments during second and sixth terms. Ego-ego relation. Micro-lesson 1, evaluation

		$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$
1	Emotional state	.25	.21	-.08	-.13	.49	.44	-.14	.02	-.06	-.18
2	Manner	.18	.24	.06	.16	-.12	-.29	.65	.50	.04	.08
3	Patience with pupils	.16	.14	-.23	-.16	.05	.07	-.05	.07	-.09	.3[illegible]
4	Sense of humor	-.66	-.51	-.04	-.12	-.31	-.11	.38	.42	.29	.52
5	Voice variation	-.16	.16	-.28	-.40	.19	-.00	.03	.28	-.08	-.19
6	Clarity of speech	.23	.13	-.25	-.20	.06	-.10	-.05	-.19	.01	.09
7	Vocal pitch	-.04	-.21	-.15	-.25	-.28	-.29	.13	.12	-.41	-.05
10	Posture	-.02	.00	.30	.16	.12	.40	-.20	-.21	.08	.02
12	Use of gestures	.09	.39	-.35	.05	.02	.09	-.29	-.14	.40	.15
13	Fiddling with objects (rings etc.)	.13	.14	.35	.53	-.37	.02	.12	-.13	-.09	.08
14	Factual knowledge	-.01	-.20	.28	-.06	.05	.35	-.14	-.29	-.16	.26
15	Use of stereotype expressions	-.23	-.21	.38	.19	-.10	-.04	.15	.12	.01	.12
16	Use of incomplete sentences	.07	.06	.39	.45	-.42	-.31	.15	.32	.52	.51
17	Use of grammatically incorrect expressions	.13	.12	.16	-.11	.16	.00	.16	-.13	.02	-.11
18	Dialectal accent	-.24	-.16	-.05	.02	.07	.08	-.34	-.36	-.34	-.20
19	Use of difficult concepts without explanations	-.33	-.11	.20	.03	.23	.45	-.11	.03	-.01	-.20
20	Mental blocks (black outs)	.22	.05	.03	-.27	-.12	-.09	-.08	-.11	.20	.11
21	Legibility of handwriting on blackboard	-.13	.37	.02	.10	.21	-.11	.19	-.08	-.16	-.17
22	Use of rhetorical questions	.19	-.29	.06	.02	-.24	.10	.02	-.04	-.22	-.09

Table 6. Canonical component structure. Student teachers' assessments during second and sixth terms. Ego-ego relation. Micro-lesson 2, evaluation

		$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$
1	Emotional state	.41	.16	-.30	-.37	-.08	-.11	-.13	-.04	.12	-.07
2	Manner	.50	.51	.15	.09	.16	.08	-.30	-.15	-.06	-.11
3	Patience with pupils	.04	.07	.06	-.03	.02	-.32	.46	.45	.24	.11
4	Sense of humor	.01	-.13	-.17	-.23	.66	.73	-.47	-.41	-.18	-.35
5	Voice variation	-.12	-.18	-.30	-.57	.22	.17	.22	.29	-.15	-.09
6	Clarity of speech	-.28	-.13	.30	.05	-.19	.08	-.19	-.38	.11	.04
7	Vocal pitch	-.40	-.40	-.21	.08	.24	.21	.06	.34	-.07	.20
10	Posture	-.26	-.02	.43	.30	.02	.08	-.06	-.12	-.33	-.11
12	Use of gestures	.10	-.03	-.14	.05	-.03	-.06	-.02	-.12	.18	.09
13	Fiddling with objects (rings etc.)	.14	-.11	.33	.34	.35	.00	-.23	.17	-.05	.19
14	Factual knowledge	-.22	-.34	.36	.45	-.16	.17	.08	.20	.70	.26
15	Use of stereotype expressions	.20	-.16	.05	.06	.3[illegible]	-.27	.18	-.04	.23	.15
16	Use of incomplete sentences	.19	.47	-.09	.1[illegible]	-.16	-.12	.26	.30	.18	-.25
17	Use of grammatically incorrect expressions	.02	.02	.25	-.08	.11	.09	.26	.14	-.13	-.19
18	Dialectal accent	-.06	.08	-.13	.01	.19	.25	-.02	-.01	.19	.49
19	Use of difficult concepts without explanations	-.13	-.20	.01	.12	.11	.17	.07	-.16	.26	.18
20	Mental blocks (black outs)	-.01	-.00	.25	-.06	-.12	.06	.29	-.06	-.10	.32
21	Legibility of handwriting on blackboard	.07	-.13	.06	.10	-.14	.22	.22	-.13	-.07	-.05
22	Use of rhetorical questions	-.28	.24	.19	-.12	.07	.11	.02	.06	.00	.44

Table 7. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during second and sixth terms. Ego-pupil relation. Micro-lessons 1 and 2, perception

						Term 2 Left side			Term 6 Right side		
Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Vk	R_{dk}	R_t	Vp	R_{dp}	R_t
Micro-lesson 1											
1	.88	.78	716.13	441	.000	.06	.05	.13	.08	.06	.15
2	.86	.74	606.16	400	.000	.07	.05	.13	.08	.06	.15
3	.83	.68	508.13	365	.001	.11	.08	.21	.09	.06	.15
4	.80	.64	423.37	324	.003	.07	.05	.13	.07	.05	.13
5	.76	.58	348.50	209	.008	.06	.04	.10	.06	.04	.10
6	.71	.50	284.70	256	.020	.05	.03	.08	.06	.03	.08
7	.68	.47	233.76	225	.041	.05	.02	.05	.03	.02	.05
8	.66	.43	187.40	196	.078	.05	.02	.05	.05	.02	.05
9	.61	.37	145.78	169	.137	.03	.01	.03	.06	.02	.05
10	.57	.33	112.31	144	.217	.04	.01	.03	.05	.02	.05
11	.54	.29	83.00	121	.323	.04	.01	.03	.03	.01	.03
12	.46	.21	57.44	100	.457	.03	.01	.03	.03	.01	.03
13	.40	.16	40.06	81	.579	.03	.01	.03	.04	.01	.03
14	.33	.11	27.17	64	.690	.04	.00	.00	.04	.00	.00
15	.28	.08	18.67	49	.775	.04	.00	.00	.04	.00	.00
16	.27	.07	12.49	36	.843	.04	.00	.00	.03	.00	.00
17	.20	.04	6.87	25	.910	.05	.00	.00	.04	.00	.00
18	.18	.03	3.94	16	.947	.04	.00	.00	.04	.00	.00
19	.11	.01	1.55	9	.979	.03	.00	.00	.03	.00	.00
20	.08	.01	.67	4	.990	.04	.00	.00	.03	.00	.00
21	.03	.00	.09	1	.998	.03	.00	.00	.03	.00	.00
						1.00	.39	1.00	1.00	.40	1.00

Wilks Λ = .000

						Term 2 Left side			Term 6 Right side		
Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Vk	R_{dk}	R_t	Vp	R_{dp}	R_t
Micro-lesson 2											
1	.86	.74	700.65	441	.000	.06	.04	.11	.08	.06	.16
2	.84	.71	602.88	400	.000	.09	.06	.16	.08	.05	.13
3	.83	.69	512.48	361	.000	.09	.06	.16	.10	.07	.18
4	.80	.64	426.10	324	.003	.05	.03	.08	.04	.03	.08
5	.78	.61	351.50	289	.008	.04	.03	.08	.05	.03	.08
6	.73	.54	282.33	256	.021	.06	.03	.08	.06	.03	.08
7	.70	.49	225.50	225	.046	.06	.03	.08	.06	.03	.08
8	.64	.42	175.81	196	.091	.05	.02	.05	.05	.03	.08
9	.57	.33	136.46	169	.156	.03	.01	.03	.05	.01	.03
10	.54	.29	107.37	144	.232	.06	.02	.05	.04	.01	.03
11	.51	.26	82.20	121	.326	.04	.01	.03	.04	.01	.03
12	.47	.22	60.04	100	.441	.05	.01	.01	.03	.01	.03
13	.40	.16	42.14	81	.563	.03	.01	.03	.03	.01	.03
14	.39	.15	29.07	64	.673	.03	.00	.00	.03	.00	.00
15	.31	.10	16.96	49	.793	.04	.00	.00	.03	.00	.00
16	.25	.06	9.62	36	.877	.04	.00	.00	.04	.00	.00
17	.18	.03	4.99	25	.934	.03	.00	.00	.03	.00	.00
18	.15	.02	2.71	16	.963	.04	.00	.00	.04	.00	.00
19	.10	.01	.97	9	.986	.03	.00	.00	.03	.00	.00
20	.05	.00	.22	4	.997	.05	.00	.00	.03	.00	.00
21	.03	.00	.05	1	.999	1.00	.38	1.00	1.00	.39	1.00

Wilks Λ = .000

Table 8. Canonical component structure. Student teachers' assessments during second and sixth terms. Ego-pupil relation. Micro-lesson 1, perception

		$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$	$t2_6$	$t6_6$
23	Explanations and descriptions	-.24	-.40	.45	.31	-.03	.16	.22	.17	-.06	.10	.25	.10
25	Helping pupils	.08	.26	-.29	-.23	.54	.53	.20	.16	.06	.33	.12	.06
26	Non-verbal contact (nodding)	.34	.05	-.11	-.25	.13	.16	.30	.24	.32	.26	.37	.18
27	Non-verbal contact (pointing)	.41	.31	-.52	-.20	-.38	-.28	-.36	-.50	.03	-.21	-.35	-.22
29	Address without eye-contact	-.09	-.14	-.20	-.45	-.25	-.27	.29	.26	-.08	.08	.39	.21
31	Interruption of pupil's speech	-.32	-.14	-.14	-.14	-.29	-.30	-.12	-.04	-.18	.08	-.12	-.15
32	Ability to maintain own authority	.17	-.05	-.03	.12	-.05	-.25	-.34	-.39	.32	-.07	.30	.01
35	Getting the pupils to work	-.00	-.19	-.09	.07	-.06	-.14	.01	.07	.02	.08	.16	.10
37	Attention directed towards passive pupils	-.22	-.37	-.07	.17	.31	.25	-.34	-.18	.01	-.05	.06	-.37
38	Contact between student teacher and pupil	.07	.25	.10	.16	-.27	-.18	-.31	-.29	-.19	.14	.44	.57
39	Confusion in class	.16	.03	.03	.26	.05	-.28	-.37	-.21	-.02	.10	-.06	-.08
40	Pupils' conversational discipline	.14	.24	-.09	-.08	.03	.24	.13	.19	-.38	-.16	.06	.21
41	Pupils' concentration	-.20	-.23	-.11	.35	-.23	.02	.18	.25	-.23	-.41	.00	.06
42	Independent work (pupils)	-.32	.06	-.13	.22	.00	-.02	.07	.19	-.08	-.21	-.13	.40
43	Pupils' ability to infer	.38	.28	.01	-.12	.14	-.14	.10	.18	.20	.31	.06	-.13
44	Estimation of pupils' initial knowledge	-.10	-.03	.48	.11	-.09	.14	-.08	-.01	-.33	-.23	-.19	-.11
45	Questioning technique: fill-in questions	-.05	-.39	-.06	-.07	-.21	-.20	.14	.11	.23	.05	.19	-.12
46	Questioning technique: irrelevant questions	-.10	-.20	-.08	-.25	.04	-.09	.12	.08	-.34	-.25	-.08	.02
47	Questioning technique: imprecise questions	-.25	-.11	.10	.08	-.13	-.05	-.07	.00	.26	-.47	-.13	-.02
48	Questioning technique: difficult questions	.02	-.02	-.15	-.18	-.24	.04	-.09	-.28	.26	-.20	-.24	.18
49	Pupils' irrelevant occupations	-.02	-.04	-.21	.29	.15	.17	-.09	-.05	.23	-.04	.09	.25

Table 9. Canonical component structure. Student teachers' assessments during second and sixth terms. Ego-pupil relation. Micro-lesson 2, perception

		$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$	$t2_6$	$t6_6$
23	Explanations and descriptions	.08	.14	.17	.16	.49	.57	.59	.48	.32	.32	.04	.26
25	Helping pupils	.46	.16	.28	.03	.46	.35	.03	.07	.02	.07	.19	.13
26	Non-verbal contact (nodding)	.03	.10	-.31	-.51	.10	.11	.44	.40	-.15	.02	.32	.09
27	Non-verbal contact (pointing)	.37	.27	-.33	-.14	.39	.11	-.30	-.31	-.09	-.24	.07	.03
29	Address without eye-contact	.40	.33	-.26	-.13	-.04	-.09	-.02	-.22	.08	.27	.03	-.21
31	Interruption of pupil's speech	-.11	-.05	.37	.11	.25	.29	.17	.38	.18	-.28	.16	-.04
32	Ability to maintain own authority	.18	.18	.14	.07	-.09	-.11	.10	.11	-.10	.13	-.01	.02
35	Getting the pupils to work	-.41	-.45	.28	.53	-.05	-.01	-.05	.01	-.25	-.28	.03	-.07
37	Attention directed towards passive pupils	-.05	.21	-.15	.25	.11	.03	.18	.14	-.17	-.07	-.36	-.24
38	Contact between student teacher and pupil	.28	.14	.01	-.04	.03	.36	.05	.07	.02	.31	.55	.47
39	Confusion in class	-.27	-.14	.04	.19	.36	.35	-.07	.03	.09	.17	-.13	-.14
40	Pupils' conversational discipline	-.11	.13	-.15	-.06	.12	.06	.20	.09	-.16	-.38	-.13	-.08
41	Pupils' concentration	-.04	.07	-.09	-.20	.06	.11	-.02	.00	.39	.34	.06	-.06
42	Independent work (pupils)	-.16	-.02	-.33	-.01	.10	.08	.14	.14	-.12	.03	-.15	-.34
43	Pupils' ability to infer	-.02	-.17	-.22	.14	.18	-.05	-.26	-.07	.13	-.02	.25	.29
44	Estimation of pupils' initial knowledge	.10	-.40	-.15	.12	.15	.05	.02	-.01	.26	.19	.02	-.03
45	Questioning technique: fill-in questions	.06	.04	.03	-.19	-.17	-.35	.00	.04	-.14	.20	.35	.47
46	Questioning technique: irrelevant questions	.25	-.30	.07	-.14	-.15	.02	.26	.28	-.28	-.20	-.04	-.03
47	Questioning technique: imprecise questions	.01	.05	.06	.14	-.22	.01	.01	.41	-.45	.26	-.18	-.04
48	Questioning technique: difficult questions	.04	.31	-.08	.03	-.02	.08	-.02	.05	-.24	.08	-.19	.22
49	Pupils' irrelevant occupations	-.09	.17	.38	.36	-.01	-.13	-.30	-.03	-.29	-.04	-.30	.26

Table 10. Canonical correlations, χ^2 tests and redundancy index. Student teachers' assessments during second and sixth terms. Ego-pupil relation. Micro-lessons 1 and 2, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side V_k	R_{dk}	R_t	Term 6 Right side V_p	R_{dp}	R_t
Micro-lesson 1											
1	.84	.71	602.27	441	.000	.05	.04	.13	.05	.03	.09
2	.81	.66	511.92	400	.000	.08	.05	.16	.09	.06	.19
3	.80	.63	433.55	361	.002	.05	.03	.09	.05	.03	.09
4	.76	.58	359.86	324	.007	.05	.03	.09	.05	.03	.09
5	.75	.56	295.44	289	.018	.05	.03	.09	.08	.05	.16
6	.67	.45	234.82	256	.041	.06	.03	.09	.08	.04	.13
7	.64	.41	191.35	225	.074	.06	.02	.06	.04	.02	.06
8	.58	.33	152.09	196	.126	.05	.02	.06	.04	.01	.03
9	.53	.28	122.36	169	.189	.05	.01	.03	.04	.01	.03
10	.51	.26	97.79	144	.264	.05	.01	.03	.04	.01	.03
11	.48	.23	75.78	121	.356	.04	.01	.03	.05	.01	.03
12	.45	.21	56.75	100	.462	.04	.01	.03	.04	.01	.03
13	.41	.17	39.85	81	.581	.04	.01	.03	.04	.01	.03
14	.32	.10	26.26	64	.699	.05	.00	.00	.05	.00	.00
15	.28	.08	18.24	49	.780	.04	.00	.00	.03	.00	.00
16	.27	.07	12.26	36	.846	.04	.00	.00	.05	.00	.00
17	.19	.04	6.60	25	.914	.05	.00	.00	.04	.00	.00
18	.16	.02	3.77	16	.950	.04	.04	.00	.05	.00	.00
19	.14	.02	1.96	9	.973	.04	.00	.00	.04	.00	.00
20	.07	.01	.43	4	.994	.04	.00	.00	.03	.00	.00
21	.02	.00	.02	1	.999	.03	.00	.00	.04	.00	.00
						1.00	.32	1.00	1.00	.32	1.00

Wilks Λ = .000

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side V_k	R_{dk}	R_t	Term 6 Right side V_p	R_{dp}	R_t
Micro-lesson 2											
1	.84	.70	582.00	441	.000	.09	.06	.18	.10	.07	.21
2	.81	.65	492.87	400	.001	.06	.04	.12	.04	.03	.09
3	.76	.57	416.29	361	.003	.07	.04	.12	.09	.05	.15
4	.74	.55	353.96	324	.008	.06	.03	.09	.05	.03	.09
5	.71	.50	295.33	289	.018	.07	.03	.09	.07	.03	.09
6	.68	.46	244.59	256	.035	.06	.03	.09	.06	.03	.09
7	.66	.43	199.76	225	.066	.07	.03	.09	.07	.03	.09
8	.62	.38	157.91	196	.116	.05	.02	.06	.04	.01	.03
9	.56	.32	127.93	169	.187	.04	.01	.03	.03	.01	.03
10	.52	.27	95.09	144	.274	.03	.01	.03	.04	.01	.03
11	.50	.25	71.88	121	.376	.06	.01	.03	.04	.01	.03
12	.41	.17	50.33	100	.504	.04	.01	.03	.04	.01	.03
13	.38	.14	36.99	81	.604	.05	.01	.03	.05	.01	.03
14	.36	.13	25.73	64	.704	.03	.00	.00	.05	.00	.00
15	.30	.09	15.72	49	.807	.04	.00	.00	.03	.00	.00
16	.22	.05	8.90	36	.886	.03	.00	.00	.04	.00	.00
17	.18	.03	5.25	25	.931	.03	.00	.00	.04	.00	.00
18	.15	.02	2.96	16	.960	.04	.00	.00	.04	.00	.00
19	.10	.01	1.23	9	.983	.04	.00	.00	.03	.00	.00
20	.08	.01	.44	4	.994	.04	.00	.00	.04	.00	.00
21	.04	.00	.00	1	1.000	.03	.00	.00	.03	.00	.00
						1.00	.34	1.00	1.00	.34	1.00

Wilks Λ = .000

Table 11. Canonical component structure. Student teachers' assessements during second and sixth terms. Ego-pupil relation. Micro-lesson 1, evaluation

	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$	$t2_6$	$t6_2$
23 Explanations and descriptions	-.01	-.20	.09	-.02	-.29	-.14	.09	-.00	.18	-.04	.23	-.05
25 Helping pupils	.18	.04	.10	-.13	.22	.18	-.02	.16	.06	.11	.16	-.15
26 Non-verbal contact (nodding)	-.10	.15	.53	.31	.46	.07	.02	-.13	.19	-.28	.21	.22
27 Non-verbal contact (pointing)	.27	.13	-.22	-.27	-.03	.08	.08	-.18	.05	.23	-.04	-.20
29 Address without eye-contact	-.04	-.21	.06	.07	.29	.71	.35	.65	-.15	-.09	-.38	-.04
31 Interruption of pupil's speech	-.09	.21	.33	.37	-.24	-.32	-.33	-.40	.17	.25	-.13	-.24
32 Ability to maintain own authority	-.33	-.25	.06	-.25	-.37	-.23	-.08	.01	.09	.03	-.05	-.13
35 Getting the pupils to work	.12	.38	.16	.23	.22	-.10	.32	-.01	-.18	-.18	.01	-.06
37 Attention directed towards passive pupils	-.02	-.04	.00	-.10	.16	.16	.18	.08	-.11	-.15	.14	.05
38 Contact between student teacher and pupil	-.24	-.34	-.46	-.11	.27	.22	-.18	.04	-.09	-.15	.35	.51
39 Confusion in class	-.16	.04	-.12	-.14	-.01	-.31	-.06	-.20	.05	.43	.34	.38
40 Pupils' conversational discipline	-.16	.12	.05	-.33	-.12	.06	-.10	-.15	-.40	.10	-.14	-.25
41 Pupils' concentration	.12	-.26	.16	-.09	-.09	-.02	-.14	-.13	-.02	-.31	.48	.30
42 Independent work (pupils)	.32	-.07	.06	-.42	-.10	-.06	.11	.33	-.08	-.15	-.01	.10
43 Pupils' ability to infer	-.07	.20	.03	.19	-.12	.02	.38	.03	-.32	.38	.22	.30
44 Estimation of pupils' initial knowledge	.45	.08	.11	.22	-.16	-.24	-.02	.06	.06	-.31	.18	.07
45 Questioning technique: fill-in questions	.17	.43	-.00	-.06	.30	.04	.21	-.02	-.52	.10	.23	.06
46 Questioning technique: irrelevant questions	.47	-.14	-.06	-.10	-.06	-.11	-.52	.04	-.26	-.12	-.25	-.08
47 Questioning technique: imprecise questions	-.13	.08	-.14	.07	-.17	.13	-.25	-.31	-.33	.14	.09	.22
48 Questioning technique: difficult questions	.19	.32	.08	-.18	.18	.05	-.05	.08	-.08	-.27	-.10	.20
49 Pupils' irrelevant occupations	.16	.25	-.47	.30	-.08	.02	.10	.19	.29	.17	.03	.23

Table 12. Canonical component structure. Student teachers' assessments during second and sixth terms. Ego-pupil relation. Micro-lesson 2, evaluation

	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$	$t2_6$	$t2_6$
23 Explanations and descriptions	-.15	-.38	-.27	-.37	-.31	-.01	-.03	.02	-.08	-.20	.04	-.03
25 Helping pupils	.18	.26	-.27	-.14	.13	.16	.48	.10	-.32	.16	-.01	.04
26 Non-verbal contact (nodding)	-.07	-.16	-.29	-.14	.72	.70	.32	.44	.18	-.18	-.14	-.26
27 Non-verbal contact (pointing)	.45	.38	.14	.21	.10	.29	.02	.16	-.20	.13	-.24	-.15
29 Address without eye-contact	.02	.00	-.18	-.26	.11	.10	-.05	.06	.27	.03	-.21	-.06
31 Interruption of pupil's speech	-.27	-.27	-.06	.02	.06	.18	.27	.30	-.20	.00	-.30	-.43
32 Ability to maintain own authority	-.02	-.25	-.15	-.48	-.29	-.22	-.32	-.09	.18	-.12	-.38	-.39
35 Getting the pupils to work	-.18	-.12	.58	.54	.16	-.07	.40	.15	.13	-.16	.18	-.15
37 Attention directed towards passive pupils	.03	-.03	-.19	-.06	.16	.10	-.10	-.19	.13	-.02	.26	.42
38 Contact between student teacher and pupil	.16	.33	.00	-.04	.11	-.31	.08	-.04	-.22	.09	.07	-.04
39 Confusion in class	-.16	-.18	-.10	.04	.02	.13	.07	-.11	.13	-.30	.61	.32
40 Pupils' conversational discipline	-.27	-.16	-.17	.08	.16	.34	-.19	.06	.11	.01	-.00	-.14
41 Pupils' concentration	-.42	-.30	.28	.12	-.02	.02	-.28	-.22	-.30	-.28	-.07	-.07
42 Independent work (pupils)	.12	-.01	-.05	-.20	-.05	.13	.04	.39	-.06	-.14	.05	.26
43 Pupils' ability to infer	-.05	-.08	-.06	-.03	-.22	-.05	.13	.05	.48	.19	.08	.08
44 Estimation of pupils' initial knowledge	-.14	.12	-.06	.01	.18	.09	-.09	-.13	.10	-.28	.19	-.17
45 Questioning technique: fill-in questions	-.19	.07	.16	.18	-.03	-.02	.23	-.19	-.06	.71	-.17	.00
46 Questioning technique: irrelevant questions	.17	.12	.15	.10	-.08	.00	.05	.20	.12	-.11	.06	.20
47 Questioning technique: imprecise questions	.08	.02	.09	.12	-.13	.11	-.20	.33	-.24	.02	-.27	.23
48 Questioning technique: difficult questions	-.46	-.29	-.29	.20	-.23	-.11	.23	.43	-.38	.01	.06	.21
49 Pupils' irrelevant occupations	.10	.30	-.25	.17	.09	-.10	-.17	.02	.08	-.16	.06	.00

Table 13. Canonical correlations, χ^2 test and redundancy index. Student teachers assessments during second and sixth terms. Ego-NPO relation. Micro-lessons 1 and 2, perception

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side Vk	R_{dk}	R_t	Term 6 Right side Vp	R_{dp}	R_t
Micro-lesson 1											
1	.91	.82	369.92	121	.011	.13	.11	.31	.19	.15	.41
2	.75	.56	227.10	100	.065	.18	.10	.28	.10	.06	.16
3	.64	.41	157.96	81	.150	.09	.04	.11	.11	.04	.11
4	.59	.36	114.21	64	.254	.15	.05	.14	.18	.06	.16
5	.54	.29	78.39	49	.391	.08	.02	.06	.05	.01	.03
6	.52	.27	49.82	36	.550	.06	.02	.06	.08	.02	.05
7	.37	.14	23.36	25	.756	.07	.01	.03	.06	.01	.03
8	.26	.07	11.08	16	.875	.07	.01	.03	.07	.01	.03
9	.23	.06	5.19	9	.939	.09	.01	.03	.06	.00	.00
10	.08	.01	.50	4	.994	.05	.00	.00	.05	.00	.00
11	.00	.00	.00	1	1.000	.02	.00	.00	.06	.00	.00
						.98	.36	1.00	1.00	.37	1.00

Wilks Λ = .012

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side Vk	R_{dk}	R_t	Term 6 Right side Vp	R_{dp}	R_t
Micro-lesson 2											
1	.76	.58	284.86	121	.033	.12	.07	.23	.13	.07	.22
2	.72	.51	213.71	100	.077	.14	.07	.23	.12	.06	.19
3	.68	.46	153.39	81	.169	.14	.06	.20	.18	.08	.25
4	.58	.34	101.50	64	.296	.08	.03	.01	.08	.03	.09
5	.54	.29	67.39	49	.446	.12	.04	.13	.15	.04	.13
6	.43	.19	39.22	36	.625	.09	.02	.07	.09	.02	.06
7	.40	.16	21.83	25	.769	.08	.01	.03	.06	.01	.03
8	.21	.05	7.60	16	.913	.06	.00	.00	.06	.00	.00
9	.16	.03	3.75	9	.956	.07	.00	.00	.05	.00	.00
10	.14	.02	1.64	4	.980	.05	.00	.00	.04	.00	.00
11	.03	.00	.06	1	.999	.05	.00	.00	.05	.00	.00
						1.00	.30	1.00	1.00	.32	1.00

Wilks Λ = .032

Table 15. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during second and sixth terms. Ego-NPO relation. Micro-lessons 1 and 2, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side Vk	R_{dk}	R_t	Term 6 Right side Vp	R_{dp}	R_t
Micro-lesson 1											
1	.68	.46	179.17	121	.117	.09	.04	.24	.11	.05	.28
2	.62	.38	128.42	100	.214	.10	.04	.24	.09	.04	.22
3	.55	.30	88.82	81	.345	.13	.04	.24	.13	.02	.11
4	.53	.28	58.55	64	.496	.09	.03	.18	.08	.01	.06
5	.40	.16	31.33	49	.687	.07	.01	.06	.07	.01	.06
6	.31	.09	16.49	36	.820	.12	.01	.06	.09	.00	.00
7	.21	.05	8.21	25	.906	.07	.00	.00	.07	.00	.00
8	.17	.03	4.30	16	.949	.09	.00	.00	.09	.00	.00
9	.11	.01	1.81	9	.977	.08	.00	.00	.09	.00	.00
10	.09	.01	.95	4	.988	.06	.00	.00	.08	.00	.00
11	.06	.00	.25	1	.997	.10	.00	.00	.08	.00	.00
						1.00	.17	1.00	1.00	.18	1.00

Wilks Λ = .116

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side Vk	R_{dk}	R_t	Term 6 Right side Vp	R_{dp}	R_t
Micro-lesson 2											
1	.72	.52	222.39	121	.069	.18	.09	.39	.15	.08	.35
2	.67	.44	161.29	100	.144	.09	.04	.17	.10	.05	.22
3	.54	.30	112.26	81	.260	.08	.02	.09	.08	.02	.09
4	.51	.26	83.03	64	.369	.10	.02	.09	.12	.03	.13
5	.46	.21	58.40	49	.496	.08	.02	.09	.10	.02	.09
6	.44	.20	38.69	36	.629	.09	.02	.09	.10	.02	.09
7	.31	.10	20.58	25	.781	.08	.01	.04	.08	.01	.04
8	.27	.07	12.23	16	.863	.07	.01	.04	.06	.01	.04
9	.20	.04	5.85	9	.932	.07	.00	.00	.08	.00	.00
10	.17	.03	2.56	4	.969	.09	.00	.00	.07	.00	.00
11	.05	.00	.18	1	.997	.08	.00	.00	.07	.00	.00
						1.00	.23	1.00	1.00	.23	1.00

Wilks Λ = .069

Table 14. Canonical component structure. Student teachers' assessments during second and sixth terms. Ego-NPO relation. Micro-lessons 1 and 2, perception

Micro-lesson 1

	$t2_1$	$t6_1$	$t2_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	
50 Assessment of own teaching	-.24	-.40	-.01	-.12	-.27	-.37	.16	.22
51 Degree of TV studio's effect on teaching	.27	.11	.42	.35	.45	.18	.46	-.08
52 General planning of the lesson	-.59	-.40	.06	-.14	-.32	-.39	.15	.22
53 Detailed planning of the lesson	.01	-.09	.14	.12	-.45	-.42	.69	.74
54 Use of teaching aids	.26	.25	.01	-.03	.14	.14	-.09	.27
55 Use of blackboard	.11	.41	.51	.70	-.24	-.07	.01	-.04
56 Arrangement on blackboard	.17	.38	-.14	-.15	.02	-.27	-.03	.01
57 Presentation of subject	.16	-.22	.54	.22	.16	.16	.06	.11
58 Communication of hard facts in the teaching	.60	.24	-.11	-.44	.06	.06	-.21	-.22
59 Linking up with pupils' initial knowledge	-.16	.02	.35	.25	.42	.38	-.38	.44
60 Digressions in presentation of subject	.05	.42	.07	-.05	.27	.49	.20	-.11

Micro-lesson 2

	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$
50 Assessment of own teaching	-.09	.04	.15	.04	.10	-.16	.12	.25	.51	.43
51 Degree of TV studio's effect on teaching	.17	.08	.45	.51	.21	.22	-.13	-.11	-.46	.25
52 General planning of the lesson	.61	.68	.26	.17	.37	.48	-.44	-.32	-.21	-.33
53 Detailed planning of the lesson	-.46	-.37	.00	-.09	.43	.24	-.28	-.17	.42	.37
54 Use of teaching aids	.20	.28	.34	.46	.18	.41	-.37	-.47	-.07	-.08
55 Use of blackboard	.16	.14	-.62	-.48	.18	.38	-.19	-.27	-.23	-.33
56 Arrangement on blackboard	-.06	.13	-.44	-.48	.28	-.03	-.21	-.13	-.25	-.40
57 Presentation of subject	.44	.23	-.07	-.16	.15	-.39	-.32	.30	.27	.38
58 Communication of hard facts in the teaching	.00	-.32	-.07	-.03	-.45	.19	.54	.24	.13	-.08
59 Linking up with pupils' initial knowledge	.33	.25	-.06	-.10	.43	.19	.17	.42	.02	.03
60 Digressions in presentation of subject	.12	-.26	.00	-.02	.28	-.32	-.23	.40	.33	.29

Table 16. Canonical component structure. Student teachers' assessments during second and sixth terms. Ego-NPO relation. Micro-lessons 1 and 2, evaluation

Micro-lesson 1

	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$	$t2_6$	$t6_6$
50 Assessment of own teaching	-.05	-.28	.06	-.05	-.06	.01	.58	.61	.59	.61	-.01	.09
51 Degree of TV studio's effect on teaching	-.08	.03	.41	.28	.01	-.12	-.28	-.19	.57	.46	.05	.29
52 General planning of the lesson	.14	.22	.02	-.06	-.12	.30	-.01	-.20	.08	.15	.62	.61
53 Detailed planning of the lesson	-.11	.29	-.82	-.35	-.14	.67	-.08	.09	.29	.33	.01	.22
54 Use of teaching aids	.10	.19	-.12	-.25	-.20	-.19	.51	.37	-.38	-.39	.10	.34
55 Use of blackboard	-.11	-.03	.14	.16	.48	.56	.44	.39	.06	.09	.03	.17
56 Arrangement on blackboard	-.08	-.47	-.18	-.08	-.13	.27	-.24	.17	-.10	-.06	-.07	-.32
57 Presentation of subject	.87	.59	-.19	-.17	-.03	-.09	.03	.21	.02	.29	-.20	-.31
58 Communication of hard facts in the teaching	-.11	-.24	-.01	-.40	-.79	.08	-.02	.32	.03	-.09	.42	.08
59 Linking up with pupils' initial knowledge	.14	.04	.06	.71	-.23	-.05	-.26	.26	.19	.15	.22	.09
60 Digressions in presentation of subject	-.38	.35	-.21	-.12	-.04	-.08	-.06	-.13	.23	.05	-.58	-.36

Micro-lesson 2

	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_5$	$t6_5$	$t2_6$	$t6_6$
50 Assessment of own teaching	.18	.19	-.21	-.05	.54	.66	-.30	-.32	.53	.61	.67	.25
51 Degree of TV studio's effect on teaching	.36	.41	-.45	-.32	.24	.14	.59	.69	.33	.21	.17	.26
52 General planning of the lesson	-.03	-.16	-.16	.03	.30	.21	.41	.34	.23	.20	.21	.15
53 Detailed planning of the lesson	.08	-.23	.60	.81	-.15	.11	.26	.43	.53	.40	-.09	-.29
54 Use of teaching aids	.35	-.04	-.13	.01	.10	.17	.04	.29	-.32	-.32	-.13	.18
55 Use of blackboard	-.05	.02	.21	-.03	.04	-.29	.11	-.02	-.13	.06	.39	.48
56 Arrangement on blackboard	.28	.70	.39	.22	-.10	-.09	.02	-.09	-.01	.01	.06	-.20
57 Presentation of subject	.21	.22	.14	.15	.59	.50	.48	.01	-.31	-.17	.01	.04
58 Communication of hard facts in the teaching	-.53	.33	.24	.41	-.14	-.21	.23	-.06	-.11	-.15	.42	.40
59 Linking up with pupils' initial knowledge	-.09	.09	.23	.04	-.38	.24	-.14	.08	-.21	-.38	.05	.27
60 Digressions in presentation of subject	.55	.24	.17	-.05	.05	.11	-.11	.11	-.11	.30	.35	.48

Table 17. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during second and sixth terms. Pupil-ego relation. Micro-lessons 1 and 2, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side Vk			Term 6 Right side Vp		
						Vk	R_{dk}	R_t	Vp	R_{dp}	R_t
Micro-lesson 1, perception											
1	.72	.51	118.88	16	.268	.26	.13	.43	.25	.13	.45
2	.63	.40	53.94	9	.551	.37	.15	.50	.37	.15	.52
3	.26	.07	8.51	4	.910	.25	.02	.07	.22	.07	.24
4	.15	.02	1.96	1	.978	.12	.00	.00	.16	.00	.00
						1.00	.30	1.00	1.00	.29	1.00
Wilks Λ = .268											
Micro-lesson 2, perception											
1	.58	.34	83.03	16	.399	.34	.11	.50	.34	.11	.48
2	.53	.28	46.01	9	.601	.28	.08	.36	.30	.08	.35
3	.39	.15	16.90	4	.839	.18	.01	.14	.18	.03	.13
4	.13	.02	1.43	1	.984	.20	.00	.00	.19	.00	.00
						1.00	.22	1.00	1.00	.23	1.00
Wilks Λ = .399											
Micro-lesson 1, evaluation											
1	.56	.32	54.53	16	.547	.28	.09	.64	.23	.08	.62
2	.38	.14	20.19	9	.800	.24	.03	.21	.26	.04	.31
3	.22	.05	6.24	4	.933	.28	.01	.07	.29	.01	.08
4	.14	.02	1.73	1	.981	.20	.00	.00	.22	.00	.00
						1.00	.14	1.00	1.00	.13	1.00
Wilks Λ = .5474											
Micro-lesson 2, evaluation											
1	.58	.34	78.69	16	.419	.34	.12	.54	.32	.11	.55
2	.52	.27	41.16	9	.634	.30	.08	.36	.24	.07	.35
3	.32	.10	12.22	4	.873	.15	.02	.08	.18	.02	.10
4	.17	.03	2.53	1	.972	.22	.01	.05	.26	.01	.05
						1.00	.22	1.00	1.00	.20	1.00
Wilks Λ = .419											

Table 19. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during second and sixth terms. Pupil-pupil relation. Micro-lessons 1 and 2, perception, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side			Term 6 Right side		
						Vk	R_{dk}	R_t	Vp	R_{dp}	R_t
Micro-lesson 1, perception											
1	.64	.42	93.34	16	.356	.35	.15	.56	.43	.18	.62
2	.54	.30	44.81	9	.609	.35	.10	.37	.30	.09	.31
3	.36	.13	13.16	4	.864	.16	.02	.07	.14	.02	.07
4	.09	.01	.66	1	.992	.14	.00	.00	.13	.00	.00
						1.00	.27	1.00	1.00	.29	1.00
Wilks Λ = .356											
Micro-lesson 2, perception											
1	.72	.52	95.65	16	.347	.49	.25	.81	.53	.28	.85
2	.46	.21	28.76	9	.727	.22	.05	.16	.17	.04	.12
3	.26	.07	7.56	4	.919	.11	.01	.03	.21	[illegible]	.03
4	.12	.01	1.26	1	.986	.19	.00	.00	.09	.00	.00
						1.00	.31	1.00	1.00	.33	1.00
Wilks Λ = .347											
Micro-lesson 1, evaluation											
1	.59	.35	68.32	16	.470	.41	.14	.64	.56	.20	.81
2	.49	.24	29.86	9	.719	.29	.07	.32	.16	.04	.17
3	.23	.05	5.39	4	.942	.15	.01	.05	.13	.01	.04
4	.08	.01	.57	1	.993	.15	.00	.00	.15	.00	.00
						1.00	.22	1.00	1.00	.24	1.00
Wilks Λ = .470											
Micro-lesson 2, evaluation											
1	.63	.39	62.28	16	.502	.53	.21	.88	.54	.21	.88
2	.33	.11	16.98	9	.829	.25	.03	.13	.25	.03	.13
3	.25	.06	6.77	4	.928	10	.01	.04	.06	.00	.00
4	.10	.01	.81	1	.991	.12	.00	.00	.15	.00	.00
						1 10	.24	1.00	1.00	.24	1.00
Wilks Λ = .502											

Table 18. Canonical component structure. Student teachers' assessments during second and sixth terms. Pupil-ego relation. Micro-lessons 1 and 2, perception, evaluation

	Micro-lesson 1, perception								Micro-lesson 2, perception							
	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$
65 Obeying student teacher's instructions	.18	.18	-.19	.29	.97	.93	.17	-.32	.81	.66	.74	.81	.12	.15	.31	.47
68 Contradiction by pupils	.94	.92	.74	.66	-.06	-.29	-.18	-.69	.07	.05	-.31	-.46	.98	.96	.23	.19
69 Pupils ask questions concerning the subject	-.05	-.17	.22	.11	-.18	-.12	.96	.20	.28	.22	-.97	.31	.05	.10	.58	.74
71 Pupils give answers other than those intended	-.29	-.32	.60	.69	.14	.20	.11	.09	.47	.72	.20	.18	.12	.20	.72	.43
	Micro-lesson 1, evaluation								Micro-lesson 2, evaluation							
65 Obeying student teacher's instructions	.08	.18	.84	.90	.95	-.31	.14	.05	.38	.38	.74	.94	.51	.41	.64	.38
68 Contradiction by pupils	.52	-.37	.24	.19	.77	.92	.12	-.12	-.95	-.15	-.17	-.07	-.81	.57	.45	.71
69 Pupils ask questions concerning the subject	-.45	-.25	-.48	-.38	-.28	.02	.79	.97	.13	.24	.52	.34	.06	.93	.56	.51
71 Pupils give answers other than those intended	.73	.89	-.08	.12	.12	.24	.51	.19	.74	.88	-.39	-.21	.12	.31	.28	.12

Table 20. Canonical component structure. Student teachers' assessments during second and sixth terms. Pupil-pupil relation. Micro-lessons 1 and 2, perception, evaluation

	Micro-lesson 1, perception								Micro-lesson 2, perception							
	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$
72 Pupils interrupt each other	.96	.96	.85	.40	.27	.44	-.63	-.68	.97	.95	.56	.77	.65	.73	-.52	-.32
73 Talk to each other about things outside the subject	.16	.10	.71	.69	.93	.84	.02	-.08	.07	.18	-.61	-.49	-.70	-.58	.03	-.50
74 Play together	.22	.24	-.01	.33	-.16	-.13	.75	.60	.17	.19	.39	[illegible]	-.16	-.08	.48	.88
75 Discuss the subject	.08	-.13	.69	.51	-.18	-.28	-.31	-.42	.14	-.18	.41	.46	-.25	-.35	-.71	-.16
	Micro-lesson 1, evaluation								Micro-lesson 2, evaluation							
72 Pupils interrupt each other	.84	.72	-.89	-.90	.68	.95	-.84	-.14	-.76	-.62	.92	.93	-.79	-.91	.48	.29
73 Talk to each other about things outside the subject	.63	.17	.02	.36	.53	.25	.69	.65	.11	.16	-.16	-.19	-.22	.11	.96	.95
74 Play together	.02	-.52	.44	.17	.44	.19	-.48	-.44	-.40	.00	.13	.31	.45	.39	.07	.05
75 Discuss the subject	.84	.42	.13	.23	.26	.02	-.33	-.60	-.50	.77	-.34	.04	-.35	.11	.01	-.06

Table 21. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during second and sixth terms. Pupil-NPO relation. Micro-lessons 1 and 2, perception, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Term 2 Left side			Term 6 Right side		
						Vk	R_{dk}	R_t	VP	R_{dp}	R_t
Micro-lesson 1, perception											
1	.51	.26	65.28	16	.486	.39	.10	.55	.45	.12	.63
2	.49	.24	38.32	9	.654	.21	.05	.28	.22	.05	.26
3	.33	.11	12.96	4	.866	.28	.03	.17	.18	.02	.11
4	.17	.03	2.65	1	.971	.12	.00	.00	.15	.00	.00
						1.00	.18	1.00	1.00	.19	1.00
Wilks Λ = .486											
Micro-lesson 2, perception											
1	.54	.29	70.83	16	.457	.34	.10	.50	.21	.06	.32
2	.47	.22	39.38	9	.647	.31	.07	.35	.44	.10	.53
3	.32	.10	16.87	4	.829	.16	.02	.10	.20	.02	.11
4	.28	.08	7.26	1	.922	.18	.01	.05	.15	.01	.05
						1.00	.20	1.00	1.00	.19	1.00
Wilks Λ = .457											
Micro-lesson 1, evaluation											
1	.49	.24	41.82	16	.629	.25	.06	.55	.21	.05	.56
2	.37	.14	16.88	9	.829	.28	.04	.36	.20	.03	.33
3	.17	.03	3.46	4	.962	.28	.01	.09	.25	.01	.11
4	.09	.01	.75	1	.991	.21	.00	.00	.34	.00	.00
						1.00	.11	1.00	1.00	.09	1.00
Wilks Λ = .629											
Micro-lesson 2, evaluation											
1	.47	.22	39.79	16	.644	.24	.05	.50	.29	.06	.55
2	.37	.14	17.21	9	.826	.26	.04	.40	.24	.03	.27
3	.19	.04	3.86	4	.958	.31	.01	.10	.24	.01	.09
4	.07	.01	.49	1	.994	.19	.00	.00	.24	.00	.00
						1.00	.10	1.00	1.00	.11	1.00
Wilks Λ = .644											

Table 22. Canonical component structure. Student teachers' assessements during second and sixth terms. Pupil-NPO relation. Micro-lessons 1 and 2, perception, evaluation

	Micro-lesson 1, perception								Micro-lesson 2, perception							
	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$	$t2_1$	$t6_1$	$t2_2$	$t6_2$	$t2_3$	$t6_3$	$t2_4$	$t6_4$
76 Pupils' interest	.45	.66	.65	.65	.51	.63	.82	.74	.65	.24	-.47	-.21	.75	.65	.40	.55
77 Presentation of subject	-.23	-.17	-.70	-.63	-.11	-.27	.54	.61	.67	.92	.74	.61	.50	.73	-.06	.08
78 Pupils' reaction to the subject	.55	.22	-.32	-.37	.83	.71	-.17	-.17	-.33	-.24	.47	.76	.18	.03	.54	.43
79 Effect of TV studio on pupils	.67	.70	-.02	-.19	-.19	.16	-.11	-.22	-.15	-.20	-.10	.12	.39	.18	-.74	-.71
	Micro-lesson 1, evaluation								Micro-lesson 2, evaluation							
76 Pupils' interest	-.18	.35	.09	.37	-.27	-.13	.94	.76	.37	.47	.11	.21	.23	.10	.86	.93
77 Presentation of subject	.55	.33	.88	.74	.08	-.15	.16	-.35	.90	.87	-.07	.19	-.11	.23	-.45	-.35
78 Pupils' reaction to the subject	.66	.83	-.39	.04	.64	.21	.30	.51	.21	.06	.85	.94	.69	.19	-.15	-.13
79 Effect of TV studio on pupils	-.48	.28	.27	.57	.72	.96	.03	-.20	.08	.13	-.52	-.18	.68	.95	-.17	-.04

Table 23. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-ego relation. Micro-lessons 1 and 2, perception

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	'Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1											
1	.83	.68	462.02	361	.002	.14	.10	.33	.08	.06	.23
2	.77	.60	375.58	324	.007	.09	.06	.20	.06	.04	.15
3	.70	.49	306.47	289	.017	.03	.01	.03	.04	.02	.08
4	.67	.44	255.09	256	.034	.04	.02	.06	.06	.03	.12
5	.64	.42	211.00	225	.061	.05	.02	.06	.06	.02	.08
6	.61	.37	170.54	196	.105	.06	.02	.06	.05	.02	.08
7	.56	.31	135.23	169	.167	.04	.01	.03	.04	.01	.04
8	.53	.28	107.25	144	.242	.05	.02	.06	.05	.01	.04
9	.49	.24	82.47	121	.335	.05	.01	.03	.05	.02	.08
10	.47	.22	61.98	100	.440	.06	.01	.03	.08	.01	.04
11	.40	.16	43.38	81	.563	.03	.01	.03	.05	.01	.04
12	.36	.13	30.27	64	.670	.04	.01	.03	.05	.00	.00
13	.30	.09	19.93	49	.768	.06	.01	.03	.04	.00	.00
14	.28	.08	12.69	36	.845	.06	.00	.00	.04	.00	.00
15	.20	.04	6.38	25	.919	.06	.00	.00	.04	.00	.00
16	.16	.03	3.42	16	.956	.03	.00	.00	.04	.00	.00
17	.11	.01	1.38	9	.982	.04	.00	.00	.08	.00	.00
18	.08	.01	.49	4	.994	.03	.00	.00	.03	.00	.00
19	.02	.00	.04	1	1.000	.06	.00	.00	.07	.00	.00
						1.00	.30	1.00	1.00	.26	1.00

Wilks Λ = .002

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	'Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 2											
1	.84	.72	484.88	361	.002	.05	.04	.15	.06	.05	.17
2	.79	.63	388.25	324	.006	.10	.06	.23	.08	.05	.17
3	.76	.57	313.37	289	.016	.03	.02	.08	.06	.03	.10
4	.72	.52	248.94	256	.037	.05	.03	.12	.06	.03	.10
5	.61	.38	194.30	225	.076	.04	.01	.04	.13	.05	.17
6	.58	.34	158.59	196	.122	.03	.01	.04	.04	.02	.07
7	.55	.30	127.16	169	.186	.07	.02	.08	.04	.01	.03
8	.53	.28	100.46	144	.264	.04	.01	.04	.05	.01	.03
9	.51	.26	75.57	121	.368	.05	.01	.04	.06	.01	.03
10	.43	.19	52.75	100	.497	.08	.01	.04	.06	.01	.03
11	.37	.14	37.22	81	.611	.07	.01	.04	.05	.01	.03
12	.35	.12	26.22	64	.707	.06	.01	.04	.04	.00	.00
13	.32	.10	16.53	49	.803	.04	.00	.00	.03	.00	.00
14	.21	.04	8.55	36	.891	.05	.00	.00	.04	.00	.00
15	.19	.04	5.19	25	.934	.05	.00	.00	.06	.00	.00
16	.15	.02	2.37	16	.969	.06	.00	.00	.04	.00	.00
17	.07	.01	.69	9	.991	.05	.00	.00	.03	.00	.00
18	.06	.00	.33	4	.996	.03	.00	.00	.04	.00	.00
19	.03	.00	.06	1	.999	.06	.00	.00	.04	.00	.00
						1.00	.26	1.00	1.00	.29	.00

Wilks Λ = .002

Table 24. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-ego relation. Micro-lesson 1, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
1	Emotional state	-.57	-.26	.39	.31	-.34	-.12	.09	.03
2	Manner	-.52	-.61	.53	.30	-.26	-.19	.15	.17
3	Patience with pupils	.01	-.04	.43	-.10	.30	.15	-.12	.08
4	Sense of humor	-.14	-.05	.37	.17	-.13	.19	.01	-.02
5	Voice variation	-.38	-.55	.20	.56	-.13	.12	.12	-.26
6	Clarity of speech	-.13	-.39	.36	.08	-.12	.04	-.27	-.36
7	Vocal pitch	.14	.02	.42	.44	.09	-.10	-.14	-.26
10	Posture	-.21	.05	.17	.00	-.01	-.09	.02	-.39
12	Use of gestures	.64	.52	-.31	-.17	.01	.24	-.05	-.01
13	Fiddling with objects (rings etc.)	-.39	.01	.26	.31	.31	.44	.48	.03
14	Factual knowledge	-.46	-.07	.01	-.05	-.06	-.19	-.26	-.11
15	Use of stereotype expressions	-.46	-.05	-.07	-.05	-.08	.20	.14	-.23
16	Use of incomplete sentences	-.34	-.05	-.34	-.38	-.16	.00	.09	-.03
17	Use of grammatically incorrect expressions	-.51	-.03	-.20	-.11	-.11	.08	-.03	-.34
18	Dialectal accent	-.52	-.30	-.15	-.25	.05	.11	-.39	-.55
19	Use of difficult concepts without explanations	-.10	-.08	.38	.03	.08	.31	-.13	.06
20	Mental blocks (black outs)	-.37	-.39	.38	.15	.02	.25	.13	-.23
21	Legibility of handwriting on blackboard	.20	.16	-.15	-.04	.02	.20	.20	.17
22	Use of rhetorical questions	-.05	-.28	[illegible]	-.05	-.06	.32	.34	-.25

Table 25. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-ego relation. Micro-lesson 2, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
1	Emotional state	.15	-.06	.49	.25	.05	.44	-.04	-.09	.04	.26
2	Manner	.19	-.13	.49	.49	.20	.17	-.06	.05	.07	.31
3	Patience with pupils	.13	.13	.01	-.15	-.01	.41	-.02	-.31	.46	.06
4	Sense of humor	.29	-.22	.23	.19	.22	.25	-.07	-.18	.04	-.22
5	Voice variation	.50	-.11	.43	.68	-.18	.25	-.08	.09	.02	.13
6	Clarity of speech	-.09	-.01	.22	.28	-.21	.17	.18	.07	.37	.59
7	Vocal pitch	-.25	-.11	.57	.40	-.31	.23	.05	-.05	.09	.44
10	Posture	.11	-.07	-.07	-.10	-.06	-.03	.39	.12	.15	.43
12	Use of gestures	-.04	-.19	-.65	-.48	.06	-.29	-.06	.23	-.01	-.23
13	Fiddling with objects (rings etc.)	.57	.63	.08	-.16	-.05	.16	.28	.23	-.04	.24
14	Factual knowledge	.03	-.30	.11	.09	.05	.23	.09	-.32	-.43	.41
15	Use of stereotype expressions	.10	-.14	.27	-.03	.22	-.84	-.04	-.01	.10	.47
16	Use of incomplete sentences	.10	-.23	.14	.24	.12	.04	-.29	-.26	.05	.63
17	Use of grammatically incorrect expressions	-.12	-.41	-.16	.00	-.08	-.04	-.04	.02	.00	.44
18	Dialectal accent	-.29	-.38	.05	-.01	.36	.31	.37	.45	.01	.17
19	Use of difficult concepts without explanations	.03	-.28	.18	-.06	-.01	-.28	-.27	-.32	.29	.28
20	Mental blocks (black outs)	-.08	-.19	.37	.38	.06	-.07	-.38	-.22	.01	.50
21	Legibility of handwriting on blackboard	.08	.03	.19	-.02	.20	.10	-.40	-.39	.04	.12
22	Use of rhetorical questions	-.08	-.34	.15	-.20	-.33	.10	-.28	-.06	.06	.37

Table 26. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-ego relation. Micro-lessons 1 and 2, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1											
1	.76	.58	378.37	361	.007	.05	.03	.13	.05	.03	.16
2	.73	.54	313.48	324	.016	.09	.05	.21	.04	.02	.11
3	.70	.49	254.85	289	.034	.08	.04	.17	.04	.02	.11
4	.63	.40	204.69	256	.067	.04	.01	.04	.04	.02	.11
5	.60	.36	166.41	225	.110	.06	.02	.08	.05	.02	.11
6	.56	.32	133.05	196	.172	.06	.02	.08	.05	.02	.11
7	.50	.25	104.52	169	.251	.06	.01	.04	.07	.02	.11
8	.46	.21	82.73	144	.334	.05	.01	.04	.04	.01	.05
9	.42	.18	64.78	121	.424	.08	.01	.04	.04	.01	.05
10	.40	.16	49.82	100	.517	.05	.01	.04	.07	.01	.05
11	.35	.12	36.77	81	.614	.05	.00	.00	.04	.01	.05
12	.34	.11	27.08	64	.708	.05	.00	.00	.06	.01	.05
13	.29	.08	18.05	49	.787	.05	.00	.00	.08	.01	.05
14	.27	.08	11.44	36	.869	.04	.00	.00	.05	.00	.00
15	.20	.04	5.56	25	.929	.03	.00	.00	.06	.00	.00
16	.14	.02	2.35	16	.969	.03	.00	.00	.03	.00	.00
17	.08	.01	.88	9	.988	.06	.00	.00	.05	.00	.00
18	.07	.00	.34	4	.996	.05	.00	.00	.09	.00	.00
19	.01	.00	.01	1	.999	.06	.00	.00	.04	.00	.00
						1.00	.24	1.00	1.00	.19	1.00

Wilks Λ = .006

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 2											
1	.78	.61	377.09	361	.007	.05	.03	.16	.05	.03	.15
2	.74	.55	305.33	324	.018	.03	.02	.11	.06	.03	.15
3	.68	.46	245.01	289	.039	.05	.03	.16	.04	.02	.10
4	.64	.40	198.00	256	.073	.03	.01	.05	.05	.02	.10
5	.60	.36	158.92	225	.121	.08	.03	.16	.05	.02	.10
6	.52	.27	124.88	196	.191	.06	.02	.11	.06	.02	.10
7	.48	.23	101.55	169	.260	.06	.01	.05	.06	.02	.10
8	.47	.22	81.56	144	.340	.04	.01	.05	.05	.01	.05
9	.43	.19	62.76	121	.436	.06	.01	.05	.04	.01	.05
10	.41	.17	47.04	100	.536	.02	.00	.00	.05	.00	.00
11	.35	.13	33.40	81	.642	.06	.00	.00	.07	.00	.00
12	.28	.08	23.33	64	.734	.08	.00	.00	.05	.00	.00
13	.26	.07	17.25	49	.796	.04	.00	.00	.05	.00	.00
14	.24	.06	12.10	36	.852	.06	.00	.00	.08	.00	.00
15	.22	.05	7.47	25	.906	.09	.00	.00	.05	.00	.00
16	.17	.03	3.69	16	.952	.04	.00	.00	.04	.00	.00
17	.11	.01	1.54	9	.980	.07	.00	.00	.06	.00	.00
18	.09	.01	.60	4	.992	.05	.00	.00	.05	.00	.00
19	.01	.00	.00	1	1.000	.03	.00	.00	.06	.00	.00
						1.00	.19	1.00	1.00	.20	1.00

Wilks Λ = .006

Table 27. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-ego relation. Micro-lesson 1, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
1	Emotional state	-.26	-.23	.03	.32	-.21	-.28	-.24	.04	-.32	-.10
2	Manner	-.11	.20	.43	-.10	.48	-.02	-.27	-.17	-.05	-.11
3	Patience with pupils	.28	.39	-.66	.32	-.08	.19	.05	.17	.18	.04
4	Sense of humor	.03	-.10	-.40	.11	-.11	-.11	.07	-.06	-.05	-.19
5	Voice variation	-.20	.03	.37	.09	.34	.06	-.00	.03	-.19	-.26
6	Clarity of speech	-.18	-.06	.14	.05	.25	.34	-.05	-.20	-.33	-.30
7	Vocal pitch	.07	.39	.12	-.09	.20	-.13	.11	-.17	.24	.14
10	Posture	.34	.57	-.42	-.05	-.28	.04	.20	.10	.31	.01
12	Use of gestures	.31	.03	.25	-.23	.04	.32	-.02	.07	.03	.53
13	Fiddling with objects (rings etc.)	.06	-.27	-.04	-.15	.07	.13	.08	-.02	.05	.15
14	Factual knowledge	-.15	-.11	.14	.25	-.18	.08	.06	.21	-.53	-.05
15	Use of stereotype expressions	-.11	-.10	-.22	.08	-.58	-.10	-.08	-.22	-.05	-.22
16	Use of incomplete sentences	-.01	-.15	-.31	.23	-.28	-.04	.33	-.24	.37	.30
17	Use of grammatically incorrect expressions	-.41	.13	-.39	.26	-.09	.19	-.08	.44	.23	.31
18	Dialectal accent	-.29	-.01	-.35	-.22	-.47	-.36	-.19	.42	.26	-.31
19	Use of difficult concepts without explanations	-.04	.20	.05	.26	-.42	.07	-.13	-.13	.21	-.13
20	Mental blocks (black outs)	-.09	.07	-.34	-.01	.06	-.22	-.43	-.05	.19	.13
21	Legibility of handwriting on blackboard	-.33	.26	.16	-.28	.28	.41	.24	.08	.17	.10
22	Use of rhetorical questions	-.17	.09	.09	.01	.13	-.25	.23	.21	.16	-.22

Table 28. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-ego relation. Micro-lesson 2, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
1	Emotional state	.52	.52	.15	-.20	-.28	-.16	-.02	-.11	.07	-.24
2	Manner	-.39	-.02	.18	-.25	-.08	.32	.16	-.22	.30	.31
3	Patience with pupils	-.08	-.15	-.05	-.30	.42	.21	.20	.13	-.24	.33
4	Sense of humor	.11	.28	.12	.53	-.15	-.07	.11	-.28	.20	-.03
5	Voice variation	.13	-.43	.11	.37	-.11	.04	.11	-.18	.60	.20
6	Clarity of speech	-.02	-.01	-.25	.25	-.41	-.20	.24	-.18	.27	.11
7	Vocal pitch	-.22	-.03	.46	.09	.04	.04	.27	.15	.14	.22
10	Posture	-.02	-.11	.05	-.39	.24	.05	-.06	-.40	.26	-.08
12	Use of gestures	-.01	-.34	.16	.23	.13	.10	-.32	.23	.01	-.33
13	Fiddling with objects (rings etc.)	-.02	-.11	.09	.03	.22	.10	.20	-.36	.30	.03
14	Factual knowledge	.02	-.19	.04	.16	-.21	.27	.09	.05	.34	.28
15	Use of stereotype expressions	-.27	-.05	.10	-.10	-.05	-.01	-.14	.05	.05	-.01
16	Use of incomplete sentences	.15	-.14	-.05	.03	-.02	-.24	.05	.05	-.12	-.18
17	Use of grammatically incorrect expressions	-.00	.11	.16	.04	.37	-.27	-.25	.08	-.50	-.17
18	Dialectal accent	.33	.12	.19	-.01	.15	.51	.12	-.20	-.23	-.36
19	Use of difficult concepts without explanations	.09	.06	.16	.01	.30	.15	.17	.09	.03	-.13
20	Mental blocks (black outs)	.32	.03	.23	.15	-.14	.02	.05	-.19	.28	.28
21	Legibility of handwriting on blackboard	.24	-.17	.13	-.13	-.22	-.11	-.03	-.45	.36	.09
22	Use of rhetorical questions	.03	.22	.28	.28	-.29	-.13	.35	.14	.27	.20

Table 29. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-pupil relation. Micro-lessons 1 and 2, perception

Micro-lesson 1

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
1	.87	.75	578.70	441	.000	.13	.10	.30	.07	.05	.18
2	.82	.66	476.42	400	.002	.06	.04	.12	.04	.02	.07
3	.78	.61	396.25	361	.005	.07	.04	.12	.04	.03	.11
4	.77	.59	327.53	324	.012	.06	.04	.12	.05	.03	.11
5	.74	.54	262.82	289	.028	.04	.02	.06	.05	.03	.11
6	.64	.41	205.43	256	.061	.07	.03	.09	.06	.01	.04
7	.62	.39	166.81	225	.103	.05	.02	.06	.04	.03	.11
8	.56	.31	131.11	196	.168	.03	.01	.03	.09	.02	.07
9	.55	.30	103.65	169	.244	.03	.01	.03	.05	.01	.04
10	.44	.19	77.14	144	.350	.03	.01	.03	.04	.01	.04
11	.42	.17	61.46	121	.433	.04	.01	.03	.04	.01	.04
12	.40	.16	47.56	100	.523	.04	.01	.03	.04	.01	.04
13	.38	.14	35.05	81	.620	.06	.01	.03	.03	.01	.04
14	.34	.11	23.61	64	.725	.04	.01	.03	.04	.00	.00
15	.29	.09	14.87	49	.817	.03	.01	.03	.04	.00	.00
16	.25	.06	8.18	36	.895	.04	.00	.00	.04	.00	.00
17	.15	.02	3.28	25	.957	.05	.00	.00	.06	.00	.00
18	.13	.02	1.64	16	.978	.04	.00	.00	.03	.00	.00
19	.07	.01	.44	9	.994	.03	.00	.00	.05	.00	.00
20	.02	.00	.06	4	.999	.05	.00	.00	.05	.00	.00
21	.02	.00	.02	1	1.000	.04	.00	.00	.05	.00	.00
						1.00	.33	1.00	1.00	.28	1.00

Wilks Λ = .000

Micro-lesson 2

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
1	.84	.71	554.45	441	.001	.13	.09	.27	.07	.05	.16
2	.80	.65	464.67	400	.002	.07	.04	.12	.04	.03	.09
3	.78	.61	388.06	361	.005	.12	.07	.21	.11	.07	.22
4	.73	.54	318.77	324	.013	.03	.02	.06	.04	.02	.06
5	.70	.48	261.94	289	.028	.02	.01	.03	.03	.02	.06
6	.61	.37	213.38	256	.055	.04	.01	.03	.11	.04	.13
7	.59	.35	179.21	225	.087	.04	.02	.06	.05	.02	.06
8	.57	.33	148.05	196	.133	.05	.02	.06	.05	.02	.06
9	.55	.30	118.98	196	.198	.03	.01	.03	.05	.02	.06
10	.50	.25	92.99	144	.282	.04	.01	.03	.04	.01	.03
11	.48	.23	71.48	121	.378	.04	.01	.03	.04	.01	.03
12	.42	.18	52.33	100	.491	.06	.01	.03	.04	.01	.03
13	.36	.13	37.84	81	.598	.03	.00	.00	.04	.01	.03
14	.34	.11	27.61	64	.687	.04	.00	.00	.04	.00	.00
15	.27	.07	18.74	49	.775	.05	.00	.00	.03	.00	.00
16	.24	.06	13.22	36	.835	.04	.00	.00	.03	.00	.00
17	.21	.04	8.86	25	.887	.04	.00	.00	.03	.00	.00
18	.19	.04	5.53	16	.928	.02	.00	.00	.05	.00	.00
19	.16	.03	2.82	9	.962	.04	.00	.00	.04	.00	.00
20	.11	.01	.95	4	.987	.03	.00	.00	.04	.00	.00
21	.02	.00	.03	1	1.000	.06	.00	.00	.03	.00	.00
						1.00	.33	1.00	1.00	.32	1.00

Wilks Λ = .008

Table 30. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-pupil relation. Micro-lesson 1, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
23	Explanations and descriptions	-.03	-.05	.11	.51	-.29	-.31	.19	.03	-.19	-.10
25	Helping pupils	-.03	.14	-.20	-.14	.55	.10	.02	-.32	-.11	-.25
26	Non-verbal contact (nodding)	-.25	-.17	.17	.12	-.18	.01	.15	.25	.15	.38
27	Non-verbal contact (pointing)	-.02	-.22	-.45	-.41	-.11	-.22	.66	.63	.47	.42
29	Address without eye-contact	.05	.11	.18	-.01	-.08	-.38	-.18	-.21	.29	.28
31	Interruption of pupil's speech	.45	.20	.17	-.04	.05	-.15	.30	.05	-.25	-.22
32	Ability to maintain own authority	-.17	-.06	.22	.07	.36	.24	-.09	-.12	.03	-.11
35	Getting the pupils to work	-.43	-.06	.33	.22	-.28	.07	-.05	-.19	.17	.04
37	Attention directed towards passive pupils	.05	-.16	.29	.01	-.49	-.08	-.08	-.08	.05	-.08
38	Contact between student teacher and pupil	-.08	-.09	.19	.23	-.28	-.18	.13	-.09	.16	.38
39	Confusion in class	.81	.74	.12	-.09	.20	-.00	.37	.27	.01	.38
40	Pupils' conversational discipline	-.80	-.25	.04	.21	-.03	-.12	-.08	-.14	.09	.15
41	Pupils' concentration	.32	.58	.32	.10	-.08	-.15	.13	-.11	.24	.44
42	Independent work (pupils)	-.38	-.05	.23	.10	-.05	.16	.02	-.13	.08	.16
43	Pupils' ability to infer	-.01	.21	-.10	.06	-.15	-.07	-.47	-.01	.21	.02
44	Estimation of pupils' initial knowledge	-.14	.09	.34	-.19	-.16	-.21	.11	.02	.13	-.04
45	Questioning technique: fill-in questions	-.08	-.19	-.14	-.11	.27	.48	.32	-.16	-.14	.14
46	Questioning technique: irrelevant questions	-.24	-.07	.32	.20	-.16	-.35	.14	-.06	-.04	-.02
47	Questioning technique: imprecise questions	-.18	-.13	.15	-.11	-.17	-.12	.19	-.05	-.21	-.02
48	Questioning technique: difficult questions	.09	-.09	-.29	-.08	.44	.17	-.28	-.52	-.16	.10
49	Pupils' irrelevant occupations	-.76	-.42	-.00	-.08	-.15	-.00	-.16	-.07	-.09	.03

Table 31. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-pupil relation. Micro-lesson 2, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
23	Explanations and descriptions	-.35	-.04	.04	.03	.34	.12	-.08	.08	.24	.24
25	Helping pupils	.56	.25	.05	.01	-.40	-.36	-.07	.25	-.03	-.09
26	Non-verbal contact (nodding)	.35	.47	.20	.13	.04	.07	-.24	.13	.10	-.14
27	Non-verbal contact (pointing)	.63	.62	-.05	.05	.40	.35	.02	.20	.11	.06
29	Address without eye-contact	.10	-.08	-.10	-.25	.14	.39	.43	.59	.03	.11
31	Interruption of pupil's speech	.05	.08	.27	-.12	.35	.40	-.08	.13	.30	-.22
32	Ability to maintain own authority	.15	.00	-.11	-.06	-.54	-.27	-.09	-.17	.23	.31
35	Getting the pupils to work	-.46	-.30	-.19	.18	.17	-.07	.10	.38	.25	-.20
37	Attention directed towards passive pupils	-.10	-.01	.28	-.02	.27	.22	.29	.00	.13	-.41
38	Contact between student teacher and pupil	-.69	-.46	.02	-.20	.26	.15	.17	.19	.13	.02
39	Confusion in class	-.29	-.15	.38	.40	.59	.72	-.10	.02	.07	.11
40	Pupils' conversational discipline	-.08	.02	-.46	-.04	-.44	-.14	.03	-.04	.08	-.07
41	Pupils' concentration	-.37	-.27	.28	.28	.49	.64	-.06	-.11	.13	.13
42	Independent work (pupils)	-.55	-.34	-.23	.03	.25	.32	-.06	-.02	-.15	.12
43	Pupils' ability to infer	-.27	-.17	.30	-.17	.34	.33	.33	.02	-.12	-.03
44	Estimation of pupils' initial knowledge	-.44	.17	.21	-.11	.13	.13	.16	-.15	-.08	.11
45	Questioning technique: fill-in questions	.01	.25	-.26	-.48	.08	.15	-.06	-.01	.02	.03
46	Questioning technique: irrelevant questions	-.07	.12	.02	-.14	.16	.22	-.05	.35	-.02	.36
47	Questioning technique: imprecise questions	-.16	.20	-.23	-.32	.24	.29	.01	.14	-.12	-.11
48	Questioning technique: difficult questions	.24	.05	-.47	.01	-.36	-.09	-.02	-.02	.05	-.20
49	Pupils' irrelevant occupations	.34	.33	-.37	-.19	-.53	-.56	.17	.06	.08	-.05

Table 32. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-pupil relation. Micro-lessons 1 and 2, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1											
1	.80	.64	465.70	441	.002	.06	.04	.15	.05	.03	.13
2	.77	.59	391.39	400	.005	.06	.03	.11	.04	.02	.09
3	.74	.55	325.21	361	.012	.07	.04	.15	.06	.03	.13
4	.69	.48	266.48	324	.027	.04	.02	.07	.04	.03	.13
5	.66	.44	218.21	289	.051	.11	.05	.19	.04	.02	.09
6	.57	.32	176.11	256	.091	.04	.01	.04	.03	.01	.04
7	.55	.30	147.69	225	.134	.06	.02	.07	.04	.01	.04
8	.53	.28	121.07	196	.193	.06	.02	.07	.04	.01	.04
9	.51	.26	97.26	169	.266	.03	.01	.04	.07	.01	.04
10	.48	.23	75.36	144	.359	.03	.01	.04	.04	.02	.09
11	.44	.19	56.16	121	.466	.04	.01	.04	.04	.01	.04
12	.41	.17	40.73	100	.577	.06	.01	.04	.05	.01	.04
13	.31	.10	27.41	81	.689	.04	.00	.00	.06	.01	.04
14	.26	.07	20.03	64	.762	.04	.00	.00	.04	.00	.00
15	.26	.07	14.78	49	.818	.04	.00	.00	.04	.00	.00
16	.22	.05	9.63	36	.877	.04	.00	.00	.05	.00	.00
17	.21	.04	5.99	25	.922	.04	.00	.00	.03	.00	.00
18	.15	.02	2.79	16	.963	.04	.00	.00	.06	.00	.00
19	.10	.01	1.18	9	.984	.04	.00	.00	.07	.00	.00
20	.06	.00	.42	4	.994	.04	.00	.00	.07	.00	.00
21	.04	.00	.14	1	.998	.04	.00	.00	.05	.00	.00
						1.00	.27	1.00	1.00	.23	1.00

Wilks Λ = .002

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 2											
1	.80	.65	440.71	441	.003	.05	.03	.12	.05	.04	.17
2	.74	.55	364.42	400	.007	.07	.04	.16	.04	.02	.09
3	.71	.50	305.72	361	.016	.04	.02	.08	.03	.02	.09
4	.69	.47	254.74	324	.031	.03	.02	.08	.06	.03	.13
5	.65	.42	208.18	289	.058	.08	.03	.12	.07	.03	.13
6	.60	.37	168.42	256	.101	.10	.04	.16	.04	.02	.09
7	.55	.30	135.04	225	.159	.03	.01	.04	.07	.02	.09
8	.51	.26	108.55	196	.228	.04	.01	.04	.04	.01	.04
9	.49	.24	86.89	169	.307	.07	.02	.08	.05	.01	.04
10	.46	.21	67.17	144	.401	.06	.01	.04	.05	.01	.04
11	.42	.17	49.96	121	.507	.03	.01	.04	.04	.01	.04
12	.40	.16	35.92	100	.613	.04	.01	.04	.04	.01	.04
13	.29	.09	23.01	81	.731	.03	.00	.00	.08	.01	.04
14	.29	.08	16.48	64	.800	.04	.00	.00	.05	.00	.00
15	.22	.05	10.19	49	.871	.03	.00	.00	.04	.00	.00
16	.20	.04	6.57	36	.914	.03	.00	.00	.05	.00	.00
17	.17	.03	3.60	25	.952	.03	.00	.00	.05	.00	.00
18	.11	.01	1.41	16	.981	.05	.00	.00	.03	.00	.00
19	.06	.00	.45	9	.994	.07	.00	.00	.04	.00	.00
20	.04	.00	.18	4	.998	.04	.00	.00	.03	.00	.00
21	.03	.00	.05	1	.999	.03	.00	.00	.04	.00	.00
						1.00	.25	1.00	1.00	.23	1.00

Wilks Λ = .002

Table 33. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-pupil relation. Micro-lesson 1, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
23	Explanations and descriptions	-.38	-.07	.18	-.12	.31	.18	-.68	.42	-.30	-.02
25	Helping pupils	.30	.22	-.05	-.34	-.23	.07	.19	.24	.49	.28
26	Non-verbal contact (nodding)	.06	-.05	-.43	-.19	-.26	-.07	.21	.03	.40	-.06
27	Non-verbal contact (pointing)	.06	.22	-.40	.09	-.47	-.38	-.03	-.16	.46	-.08
29	Address without eye-contact	-.07	.06	.08	-.31	.27	.05	.24	-.17	-.09	.07
31	Interruption of pupil's speech	-.47	-.43	.17	.20	-.30	-.29	.03	.44	.25	.14
32	Ability to maintain own authority	-.06	.17	.31	.25	.44	.50	.13	.01	-.04	.15
35	Getting the pupils to work	-.01	.15	-.21	-.01	.06	.41	-.22	.37	-.21	-.23
37	Attention directed towards passive pupils	-.05	.15	-.16	.02	.05	.10	.17	.19	-.02	-.10
38	Contact between student teacher and pupil	-.21	-.13	.15	-.10	.48	.16	-.04	.10	-.04	-.14
39	Confusion in class	-.24	.08	-.08	-.14	.10	-.31	-.02	.21	.26	.48
40	Pupils' conversational discipline	-.00	-.04	-.24	.46	-.42	.24	.44	.12	.27	-.11
41	Pupils' concentration	-.15	-.14	.22	-.09	.04	.16	.36	-.34	-.51	-.34
42	Independent work (pupils)	-.15	.55	.06	.08	-.04	.18	-.05	.45	-.31	-.17
43	Pupils' ability to infer	-.18	.05	.03	-.20	-.21	-.18	-.01	.33	-.61	.26
44	Estimation of pupils' initial knowledge	-.30	-.05	.17	.19	.17	-.33	-.10	-.06	-.66	.16
45	Questioning technique: fill-in questions	.03	-.40	-.19	.20	.12	.15	.29	-.15	.02	.21
46	Questioning technique: irrelevant questions	-.51	.24	.39	.04	.23	-.13	.05	.14	-.19	-.09
47	Questioning technique: imprecise questions	-.16	.16	.43	-.13	.09	.12	-.11	-.07	-.36	-.01
48	Questioning technique: difficult questions	.38	.23	-.17	.02	.14	.06	.20	.16	-.13	.19
49	Pupils' irrelevant occupations	.39	.11	.18	.25	-.18	.34	.33	-.33	-.01	-.10

Table 34. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-pupil relation. Micro-lesson 2, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
23	Explanations and descriptions	.23	.09	-.22	.08	.12	.33	.07	.09	.31	.31
25	Helping pupils	-.30	-.18	.15	.02	.00	.41	.34	-.13	-.34	-.17
26	Non-verbal contact (nodding)	-.34	-.51	.24	.13	.10	-.14	.17	-.22	-.40	-.22
27	Non-verbal contact (pointing)	-.05	-.23	.18	-.07	.12	-.08	.10	.13	-.37	-.24
29	Address without eye-contact	.15	-.28	-.03	-.08	-.24	-.32	.02	-.16	.24	.16
31	Interruption of pupil's speech	.59	.67	.50	.16	-.23	-.10	.10	-.09	-.10	-.19
32	Ability to maintain own authority	.19	-.17	-.33	-.02	.04	.06	.02	-.04	.23	-.02
35	Getting the pupils to work	-.05	-.04	-.14	-.22	.33	.02	-.14	.40	-.43	.06
37	Attention directed towards passive pupils	.17	-.02	-.44	.25	.17	-.03	.26	.31	.18	-.26
38	Contact between student teacher and pupil	.08	.01	-.01	.05	.35	.03	.14	.16	.20	.53
39	Confusion in class	.26	.20	.49	.61	.04	.14	.02	.18	.19	-.12
40	Pupils' conversational discipline	-.28	-.12	-.31	-.23	-.24	-.08	-.06	-.56	-.31	.18
41	Pupils' concentration	.26	.21	-.19	-.05	-.06	-.19	-.08	.10	.43	.30
42	Independent work (pupils)	-.01	.12	-.14	.01	-.31	-.10	.15	.19	-.04	.22
43	Pupils' ability to infer	.13	-.10	-.30	.28	-.02	-.21	.21	.46	-.03	-.04
44	Estimation of pupils' initial knowledge	-.05	.16	.14	-.20	-.06	.22	.37	.22	.30	.37
45	Questioning technique: fill-in questions	.15	-.07	.07	.07	.20	-.04	.27	-.10	-.09	.62
46	Questioning technique: irrelevant questions	.06	-.21	.14	.07	.04	.08	-.09	.27	-.39	-.10
47	Questioning technique: imprecise questions	.11	.04	-.13	.17	-.03	.16	-.18	.23	.31	-.20
48	Questioning technique: difficult questions	.02	-.10	.08	.17	.53	.23	-.19	.03	.01	.21
49	Pupils' irrelevant occupations	-.27	-.11	-.34	-.35	.01	-.23	.28	-.20	-.19	.26

Table 35. Canonical correlations, X^2 test and redundancy index. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-NPO relation. Micro-lessons 1 and 2, perception

Roots	R_c	R_c^2	Observed X^2 value	df	Λ	Ed experts Left side			Student teachers Right side		
						V_b	R_{db}	R_t	V_l	R_{dl}	R_t
Micro-lesson 1											
1	.89	.80	237.34	121	.058	.13	.10	.48	.15	.12	.55
2	.55	.31	102.95	100	.291	.06	.02	.10	.09	.03	.14
3	.51	.26	72.31	81	.421	.08	.02	.10	.09	.02	.09
4	.44	.20	47.11	64	.569	.27	.05	.24	.12	.05	.23
5	.35	.12	28.93	49	.707	.05	.01	.05	.05	.01	.05
6	.32	.10	17.98	36	.806	.05	.01	.05	.09	.01	.05
7	.22	.05	8.78	25	.900	.05	.00	.00	.06	.00	.00
8	.19	.03	4.52	16	.947	.05	.00	.00	.10	.00	.00
9	.12	.01	1.59	9	.981	.11	.00	.00	.11	.00	.00
10	.06	.00	.38	4	.995	.08	.01	.00	.07	.00	.00
11	.02	.00	.04	1	1.000	.08	.00	.00	.09	.00	.00
						1.00	.21	1.00	1.00	.22	1.00

Wilks Λ = .058

Roots	R_c	R_c^2	Observed X^2 value	df	Λ	V_b	R_{db}	R_t	V_l	R_{dl}	R_t
Micro-lesson 2											
1	.71	.50	158.96	121	.149	.14	.07	.39	.10	.05	.32
2	.56	.32	101.01	100	.298	.09	.03	.17	.11	.04	.25
3	.52	.27	69.13	81	.437	.12	.03	.17	.09	.03	.19
4	.43	.18	42.74	64	.599	.05	.01	.06	.13	.02	.13
5	.35	.12	26.10	49	.732	.26	.03	.17	.07	.01	.06
6	.27	.08	15.41	36	.836	.08	.01	.06	.14	.01	.06
7	.23	.05	8.92	25	.899	.03	.00	.00	.06	.00	.00
8	.18	.03	4.24	16	.951	.07	.00	.00	.07	.00	.00
9	.13	.02	1.39	9	.984	.06	.00	.00	.08	.00	.00
10	.02	.00	.05	4	.999	.05	.00	.00	.07	.00	.00
11	.01	.00	.01	1	1.000	.05	.00	.00	.07	.00	.00
						1.00	.18	1.00	1.00	.16	1.00

Wilks Λ = .149

Table 36. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-NPO relation, Micro-lesson 1, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
50	Assessment of own teaching	.01	-.38	.17	-.35	-.14	-.11	.72	.68
51	Degree of TV studio's effect on teaching	-.02	-.07	-.11	.05	-.10	.33	.39	.31
52	General planning of the lesson	-.40	-.29	-.16	.01	-.05	-.18	.64	.25
53	Detailed planning of the lesson	.23	.21	.11	.48	.36	.28	-.41	-.21
54	Use of teaching aids	.18	.42	.31	-.29	.48	.68	-.35	-.19
55	Use of blackboard	.96	.96	-.09	-.05	-.01	.07	-.09	.00
56	Arrangement on blackboard	-.20	-.41	.15	.43	-.41	-.12	.31	.23
57	Presentation of subject	-.24	-.13	-.27	-.09	-.34	-.07	.68	.55
58	Communication of hard facts in the teaching	-.22	.02	-.54	-.46	-.12	-.27	.56	-.22
59	Linking up with pupils' initial knowledge	-.17	-.30	-.01	.15	.21	.42	.80	.40
60	Digressions in presentation of subject	-.28	-.16	-.22	-.28	-.35	-.12	.26	-.16

Table 37. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-NPO relation, Micro-lesson 2, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
50	Assessment of own teaching	-.05	-.27	-.44	-.41	-.40	-.34	.13	.30	-.37	-.45
51	Degree of TV studio's effect on teaching	.14	.15	-.42	-.07	-.32	.34	-.36	.00	-.29	-.33
52	General planning of the lesson	-.47	-.20	-.08	-.17	-.25	.07	.41	.57	-.67	.28
53	Detailed planning of the lesson	.33	.16	-.25	.51	.28	-.22	-.29	-.19	.65	.04
54	Use of teaching aids	.15	.13	.47	.56	.43	.38	-.36	-.56	.07	-.14
55	Use of blackboard	.96	.85	-.17	-.08	.03	.18	.02	-.04	.01	-.12
56	Arrangement on blackboard	-.41	-.38	-.06	-.08	.44	.60	.01	.51	-.17	.24
57	Presentation of subject	-.22	-.09	-.04	.37	-.48	.34	.01	.45	-.74	-.30
58	Communication of hard facts in the teaching	-.07	-.01	.03	.24	-.49	.01	.06	.40	-.72	-.34
59	Linking up with pupils' initial knowledge	-.11	-.16	-.54	-.48	-.05	.27	-.05	.23	-.78	-.06
60	Digressions in presentation of subject	-.01	.07	-.07	-.07	-.32	.16	.21	.21	.14	-.17

Table 38. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-NPO relation. Micro-lessons 1 and 2, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1											
1	.57	.33	141.98	121	.183	.06	.02	.15	.07	.02	.17
2	.54	.29	109.01	100	.271	.05	.02	.15	.06	.02	.17
3	.52	.27	80.26	81	.382	.08	.02	.15	.11	.03	.25
4	.43	.19	53.84	64	.525	.16	.03	.23	.09	.02	.17
5	.38	.15	36.12	49	.649	.11	.02	.15	.08	.01	.15
6	.35	.12	22.95	36	.760	.11	.01	.08	.07	.01	.15
7	.26	.07	12.75	25	.845	.11	.01	.08	.10	.00	.00
8	.18	.03	6.43	16	.926	.07	.00	.00	.11	.00	.00
9	.16	.03	3.72	9	.967	.10	.00	.00	.09	.00	.00
10	.13	.02	1.50	4	.982	.06	.00	.00	.11	.00	.00
11	.04	.00	.12	1	.997	.09	.00	.00	.11	.00	.00
						1.00	.13	1.00	1.00	.12	1.00

Wilks Λ = .182

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 2											
1	.62	.38	138.86	121	.190	.09	.04	.31	.07	.03	.23
2	.57	.32	99.02	100	.301	.07	.02	.15	.11	.04	.31
3	.48	.23	66.34	81	.452	.09	.02	.15	.07	.02	.15
4	.43	.19	44.98	64	.584	.15	.03	.23	.10	.02	.15
5	.33	.11	27.92	49	.716	.07	.01	.08	.10	.01	.08
6	.29	.08	18.02	36	.806	.11	.01	.08	.08	.01	.08
7	.23	.05	10.91	25	.878	.05	.00	.00	.11	.00	.00
8	.21	.04	6.53	16	.925	.09	.00	.00	.07	.00	.00
9	.16	.03	2.91	9	.966	.07	.00	.00	.08	.00	.00
10	.09	.01	.65	4	.992	.11	.00	.00	.10	.00	.00
11	.01	.00	.02	1	1.000	.10	.00	.00	.11	.00	.00
						1.00	.13	1.00	.13	1.00	1.00

Wilks Λ = .190

Table 39. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-NPO relation. Micro-lesson 1, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
50	Assessment of own teaching	.01	.03	.10	-.33	-.13	-.50	-.19	-.38
51	Degree of TV studio's effect on teaching	.46	-.02	-.20	-.20	.46	.19	-.15	-.30
52	General planning of the lesson	.27	-.25	.05	-.30	-.24	.07	-.74	.14
53	Detailed planning of the lesson	.14	-.34	.18	-.01	.27	.43	.38	.51
54	Use of teaching aids	-.09	-.03	-.12	-.16	.53	.55	.11	-.45
55	Use of blackboard	-.02	-.28	.46	.47	-.06	-.32	-.35	-.21
56	Arrangement on blackboard	-.34	-.56	.23	.12	.14	-.08	-.62	-.43
57	Presentation of subject	.08	-.15	-.10	.22	.07	-.15	-.39	.16
58	Communication of hard facts in the teaching	.43	.38	.32	.09	.25	.23	-.02	.07
59	Linking up with pupils' initial knowledge	-.23	.01	-.22	-.04	.40	-.45	-.35	.24
60	Digressions in presentation of subject	.13	-.10	-.28	-.29	-.05	-.17	-.41	.05

Table 40. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Ego-NPO relation. Micro-lesson 2, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
50	Assessment of own teaching	.85	-.10	.00	.09	.17	-.21	.17	-.01
51	Degree of TV studio's effect on teaching	-.21	.34	.40	.10	-.22	.23	-.13	-.36
52	General planning of the lesson	.37	.05	.04	.32	.13	-.21	.53	.04
53	Detailed planning of the lesson	-.06	.11	-.05	.22	-.08	-.32	-.58	-.40
54	Use of teaching aids	-.15	-.09	.67	.87	.23	.30	-.17	.24
55	Use of blackboard	-.03	-.05	-.10	-.11	.50	-.06	-.26	.56
56	Arrangement on blackboard	-.13	-.01	-.14	.02	.47	.52	.62	.14
57	Presentation of subject	-.13	-.12	-.31	.35	.32	-.25	.38	-.28
58	Communication of hard facts in the teaching	.26	.71	.12	.37	.17	.02	.07	.31
59	Linking up with pupils' initial knowledge	.01	-.36	.03	.01	.28	.03	.59	.03
60	Digressions in presentation of subject	-.08	-.01	-.03	.07	.43	-.21	-.09	.47

Table 41. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessements during the sixth term and educational experts' assessements during the student teachers' second term. Pupil-ego relation. Micro-lessons 1 and 2, perception, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1, perception											
1	.51	.26	29.66	16	.721	.46	.12	1.00	.36	.09	.90
2	.16	.03	2.99	9	.964	.17	.00	.00	.24	.01	.10
3	.08	.01	.56	4	.994	.09	.00	.00	.23	.00	.00
4	.02	.00	.04	1	1.000	.27	.00	.00	.18	.00	.00
						1.00	.12	1.00	1.00	.10	1.00
Wilks Λ = .721											
Micro-lesson 2, perception											
1	.51	.26	45.63	16	.604	.39	.16	.84	.36	.10	.71
2	.37	.14	17.76	9	.822	.18	.03	.16	.26	.04	.39
3	.22	.05	4.31	4	.953	.14	.01	.05	.15	.01	.00
4	.01	.00	.01	1	1.000	.09	.00	.00	.23	.00	.00
						1.00	.19	1.00	1.00	.14	1.00
Wilks Λ = .879											
Micro-lesson 1, evaluation											
1	.28	.08	11.62	16	.880	.42	.03	.75	.35	.03	.75
2	.19	.03	3.99	9	.957	.21	.01	.25	.20	.01	.25
3	.09	.01	.82	4	.991	.22	.00	.00	.19	.00	.00
4	.01	.00	.82	1	1.000	.15	.00	.00	.25	.00	.00
						1.00	.04	1.00	1.00	.04	1.00
Wilks Λ = .880											
Micro-lesson 2, evaluation											
1	.38	.14	22.05	16	.784	.21	.03	.50	.30	.04	.67
2	.24	.06	8.21	9	.913	.32	.02	.33	.27	.02	.33
3	.16	.03	3.00	4	.967	.24	.01	.17	.16	.00	.00
4	.08	.01	.60	1	.993	.24	.00	.00	.28	.00	.00
						1.00	.06	1.00	1.00	.06	1.00
Wilks Λ = .784											

Table 42. Canonical component structure. Student teachers' assessements during the sixth term and educational experts' assessements during the student teachers' second term. Pupil-ego-relation. Micro-lessons 1 and 2, perception, evaluation

	Micro-lesson 1, perception								Micro-lesson 2, perception							
	b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
65 Obeying student teachers' instructions	.49	.30	.54	.66	-.48	.04	-.49	.69	.78	.93	.90	.29	-.32	-.01	-.19	-.24
68 Contradiction by pupils	.77	.09	.53	.46	.32	-.31	-.19	-.26	.94	.39	-.15	-.67	-.23	.63	.19	.19
69 Pupils ask questions concerning the subject	-.96	-.76	.04	.52	.07	.12	-.28	-.37	-.49	-.38	-.64	.83	.53	.44	.26	.07
71 Pupils give answers other than those intended	.38	.36	-.33	.19	.25	.90	-.86	-.15	.79	.35	.16	.23	.37	.08	-.47	.91
	Micro-lesson 1, evaluation								Micro-lesson 2, evaluation							
65 Obeying student teachers' instructions	.53	.38	-.25	.42	.77	.75	-.24	.34	.58	.48	-.26	.41	.22	.63	-.76	-.45
68 Contradiction by pupils	.59	.95	-.64	.00	-.46	-.24	.17	.22	.64	.94	-.58	-.12	-.11	-.32	-.49	-.10
69 Pupils ask questions concerning the subject	.77	-.01	.53	.67	-.22	-.30	-.28	-.67	.30	.11	.33	-.01	.82	.28	-.36	.96
71 Pupils give answers other than those intended	-.68	-.63	-.31	.43	-.12	-.24	-.66	.60	.11	-.86	.07	.94	-.46	-.21	.15	-.06

Table 43. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessements during the sixth term and educational experts' assessements during the student teachers' second term. Pupil-pupil relation. Micro-lessons 1 and 2, perception, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1, perception											
1	.67	.45	69.22	16	.465	.64	.29	.94	.57	.26	.93
2	.29	.08	14.45	9	.853	.15	.01	.03	.15	.01	.04
3	.26	.07	6.79	4	.928	.08	.01	.03	.15	.01	.04
4	.06	.00	.37	1	1.000	.13	.00	.00	.13	.00	.00
						1.00	.31	1.00	1.00	.28	1.00
Wilks Λ = .465											
Micro-lesson 2, perception											
1	.65	.42	59.27	16	.520	.65	.27	.93	.53	.22	.92
2	.24	.06	10.02	9	.895	.12	.01	.03	.15	.01	.04
3	.18	.03	4.45	4	.952	.17	.01	.03	.08	.00	.00
4	.12	.02	1.35	1	.985	.06	.00	.00	.24	.00	.00
						1.00	.29	1.00	1.00	.24	1.00
Wilks Λ = .519											
Micro-lesson 1, evaluation											
1	.36	.13	17.24	16	.827	.22	.03	.60	.17	.02	.67
2	.19	.04	4.39	9	.953	.35	.01	.20	.27	.01	.33
3	.10	.01	1.06	4	.988	.14	.00	.00	.36	.00	.00
4	.04	.00	.17	1	1.000	.30	.00	.00	.19	.00	.00
						1.00	.05	1.00	1.00	.03	1.00
Wilks Λ = .827											
Micro-lesson 2, evaluation											
1	.37	.13	23.75	16	.769	.25	.03	.38	.21	.03	.50
2	.33	.11	10.41	9	.891	.43	.05	.63	.33	.04	.67
3	.06	.00	.30	4	.997	.22	.00	.00	.19	.00	.00
4	.02	.00	.02	1	1.000	.11	.00	.00	.29	.00	.00
						1.00	.08	1.00	1.00	.06	1.00
Wilks Λ = .769											

Table 44. Canonical component structure. Student teachers' assessements during the sixth term and educational experts' assessements during the student teachers' second term. Pupil-pupil relation. Micro-lessons 1 and 2, perception, evaluation

	Micro-lesson 1, perception								Micro-lesson 2, perception							
	b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
72 Pupils interrupt each other	.87	.89	.47	.16	-.15	-.40	.02	-.17	.92	.96	-.34	-.20	.17	-.20	-.14	.03
73 Talk to each other about things outside the subject	.56	.71	.53	.29	.35	.27	.53	.58	.76	.78	.04	.66	.65	-.28	-.03	.01
74 Play together	.93	.79	-.20	-.04	.22	.57	.21	-.23	.91	.83	.04	.36	.20	.43	.36	.01
75 Discuss the subject	-.78	-.61	-.27	.71	.35	.21	-.46	-.29	-.61	-.17	.60	.07	-.45	.08	-.26	.98
	Micro-lesson 1, evaluation								Micro-lesson 2, evaluation							
72 Pupils interrupt each other	-.18	-.13	-.16	-.71	-.07	.70	.97	-.02	.32	.42	-.66	-.35	-.41	.82	.54	-.17
73 Talk to each other about things outside the subject	-.39	.78	.73	-.14	-.90	-.58	-.27	-.40	.01	-.18	.71	.94	.61	.24	.35	.18
74 Play together	.38	-.18	-.66	.49	-.53	.41	.38	.75	.47	.74	-.88	-.55	.04	.11	-.09	-.37
75 Discuss the subject	-.73	-.38	-.62	.58	.15	-.69	-.23	-.19	.81	.25	-.11	-.04	-.57	.04	-.06	.97

Table 45. Canonical correlations, χ^2 test and redundancy index. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Pupil-NPO relation. Micro-lessons 1 and 2, perception, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1, perception											
1	.38	.15	30.07	16	.717	.14	.02	.25	.24	.04	.50
2	.35	.13	15.63	9	.841	.48	.06	.75	.31	.04	.50
3	.19	.04	3.56	4	.961	.07	.00	.00	.18	.00	.00
4	.03	.01	.09	1	.999	.31	.00	.00	.27	.00	.00
						1.00	.08	1.00	1.00	.08	1.00
Wilks Λ = .717											
Micro-lesson 2, perception											
1	.55	.30	42.09	16	.628	.53	.16	.94	.35	.11	.79
2	.29	.09	9.59	9	.900	.10	.01	.06	.33	.03	.21
3	.10	.01	1.43	4	.984	.11	.00	.00	.13	.00	.00
4	.07	.01	.44	1	.995	.26	.00	.00	.18	.00	.00
						1.00	.17	1.00	1.00	.14	1.00
Wilks Λ = .628											
Micro-lesson 1, evaluation											
1	.25	.06	10.83	16	.887	.28	.02	.67	.22	.01	.33
2	.18	.03	5.05	9	.946	.27	.01	.33	.22	.01	.33
3	.15	.02	2.16	4	.976	.23	.00	.00	.23	.01	.33
4	.00	.00	.00	1	1.000	.22	.00	.00	.34	.00	.00
						1.00	.03	1.00	1.00	.03	1.00
Wilks Λ = .887											
Micro-lesson 2, evaluation											
1	.36	.13	24.96	16	.759	.24	.03	.43	.20	.03	.50
2	.28	.08	12.33	9	.873	.25	.02	.29	.32	.02	.33
3	.22	.05	4.98	4	.947	.25	.01	.14	.23	.01	.17
4	.07	.01	.44	1	.995	.25	.00	.00	.25	.00	.00
						1.00	.07	1.00	1.00	.06	1.00
Wilks Λ = .759											

Table 46. Canonical component structure. Student teachers' assessments during the sixth term and educational experts' assessments during the student teachers' second term. Pupil-NPO relation. Micro-lessons 1 and 2, perception, evaluation

		Micro-lesson 1, perception								Micro-lesson 2, perception							
		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
76	Pupils' interest	.35	.86	.76	.40	-.39	.20	.39	.25	.79	.85	.39	.52	.45	-.10	-.15	-.02
77	Presentation of subject	.01	-.12	.94	.98	.34	.16	.10	.01	.75	.01	.50	.67	-.26	.59	-.36	-.46
78	Pupils' reaction to the subject	.54	.45	.61	.21	.10	.77	.57	.40	.94	.82	.06	.30	.21	.40	-.25	.28
79	Effect of TV studio on pupils	-.39	-.09	.31	.24	-.12	-.30	.86	.92	-.18	-.15	-.05	.73	.36	-.01	-.91	.67
		Micro-lesson 1, evaluation								Micro-lesson 2, evaluation							
76	Pupils' interest	-.22	-.35	.76	.24	.59	.85	-.17	.31	.14	-.01	.56	.96	-.26	-.17	.78	-.22
77	Presentation of subject	-.89	.36	.32	-.52	-.22	.41	-.24	.66	.72	.35	.15	.52	.60	.65	.31	.42
78	Pupils' reaction to the subject	-.24	-.42	.37	.09	.07	.00	.89	.90	.34	.77	.71	.25	-.38	.13	.49	-.58
79	Effect of TV studio on pupils	-.46	.67	-.52	.74	.72	-.01	-.11	.10	-.57	.27	.42	.16	.66	-.68	.25	.66

Table 1. ANOVA table for statement 1: *I observe myself during the recording (1) not at all in the same way as other people, (7) in exactly the same way as other people*

Source	df	MS	F	ω^2	f	g
T	1	.75				
H	1	.44				
TH	1	27.63	4.09*	.02	.15	.55
I(TH)	92	6.57				
U	1	1.90				
TU	1	.21				
HU	1	.21				
THU	1	.44				
UI(TH)	92	.65				
R	1	.13				
TR	1	10.34				
HR	1	.75				
THR	1	4.38				
RI(TH)	92	2.78				
RU	1	3.57	6.05*	.00	.18	.70
TRU	1	1.15				
HRU	1	.75				
THRU	1	.13				
RUI(TH)	92	.59				

Table 2. ANOVA table for statement 2: When I see myself during the viewing, I am (1) much more critical of myself than of others, (7) much less critical of myself than of others

Source	df	MS	F	ω^2	f	g
T	1					
H	1	.84				
TH	1	4.17				
I(TH)	92	2.66				
U	1	.51				
TU	1	.04				
HU	1	.38				
THU	1	.26				
UI(TH)	92	.39				
R	1	1.26				
TR	1	5.04	4.84*	.01	.16	.60
HR	1	.38				
RHV	1	.51				
RI(TH)	92	1.04				
RU	1	.38				
TRU	1	.01				
HRU	1	.01				
THRU	1	.04				
RUI(TH)	92	.29				

Table 3. ANOVA table for statement 3: When I see myself during the viewing, (1) I find it very difficult to recognise myself, (7) I find it very easy to recognise myself

Source	df	MS	F	ω^2	f	g
T	1	17.94				
H	1	14.65				
TH	1	3.57				
I(TH)	92	6.19				
U	1	3.19				
TU	1	.32				
HU	1	.02				
THU	1	.00				
UI(TH)	92	.87				
R	1	.02				
TR	1	13.88	5.69*	.01	.17	.65
HR	1	.59				
THR	1	1.38				
RI(TH)	92	2.44				
RU	1	.13				
TRU	1	.75				
HRU	1	.75				
THRU	1	.87				
RUI(TH)	92	.83				

Table 4. ANOVA table for statement 4: When I see myself during the viewing, I am (1) completely dissatisfied, (7) completely satisfied

Source	df	MS	F	ω^2	f	g
T	1	1.76				
H	1	6.00				
TH	1	8.76				
I(TH)	92	3.18				
U	1	.84				
TU	1	6.00	5.00*	.01	.16	.60
HU	1	.51				
THU	1	2.67				
UI(TH)	92	1.20				
R	1	15.84	14.00**	.02	.19	.87
TR	1	.67				
HR	1	1.76				
THR	1	3.38				
RI(TH)	92	1.12				
RU	1	.38				
TRU	1	.26				
HRU	1	.04				
THRU	1	.01				
RUI(TH)	92	.74				

Table 5. ANOVA table for statement 5: When I see myself during the viewing, I concentrate my attention (1) wholly on the details, (7) wholly on the overall impression

Source	df	MS	F	ω^2	f	g
T	1	.13				
H	1	5.75				
TH	1	.75				
I(TH)	92	4.13				
U	1	.00				
TU	1	.44				
HU	1	.21				
THU	1	.59				
UI(TH)	92	.81				
R	1	7.32	3.98*	.01	.10	.52
TR	1	2.84				
HR	1	.02				
THR	1	2.19				
RI(TH)	92	1.84				
RU	1	1.90				
TRU	1	.13				
HRU	1	.00				
THRU	1	.13				
RUI(TH)	92	.89				

Table 6. ANOVA table for statement 6: When during the viewing I see how I behave, I think that I am (1) the exact opposite to what I had expected, (7) exactly as I had expected

Source	df	MS	F	ω^2	f	g
T	1	8.46				
H	1	5.27				
TH	1	.32				
I(TH)	92	3.47				
U	1	6.25	9.19**	.01	.16	.72
TU	1	.13				
HU	1	.21				
THU	1	.32				
UI(TH)	92	.68				
R	1	.00				
TR	1	1.15				
HR	1	.21				
THR	1	2.84				
RI(TH)	92	1.28				
RU	1	3.57	5.85*	.01	.17	.65
TRU	1	.94				
HRU	1	.02				
THRU	1	.59				
RUI(TH)	92	.61				

Table 7. ANOVA table for statement 7: I find viewing myself on the TV screen (1) very unpleasant, (7) very pleasant

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	1.50				
H	1	14.26	4.27*	.02	.11	.58
TH	1	2.34				
I(TH)	92	3.34				
U	1	.00				
TU	1	1.50				
HU	1	.01				
THU	1	.26				
UI(TH)	92	.44				
R	1	.00				
TR	1	.00				
HR	1	.01				
THR	1	.84				
RI(TH)	92	.57				
RU	1	.38				
TRU	1	.04				
HRU	1	.09				
THRU	1	.84				
RUI(TH)	92	.32				

Table 8. ANOVA table for statement 8: During this viewing my attention was caught by single details (1) very often, (7) very seldom

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	5.27				
H	1	13.13				
TH	1	4.38				
I(TH)	92	4.46				
U	1	17.94	19.93**	.02	.23	.96
TU	1	1.90				
HU	1	.75				
THU	1	.21				
UI(TH)	92	.90				
R	1	2.50				
TR	1	6.77	4.51**	.01	.14	.50
HR	1	5.75				
THR	1	3.57				
RI(TH)	92	1.75				
RU	1	.44				
TRU	1	.59				
HRU	1	.02				
THRU	1	1.38				
RUI(TH)	92	.85				

Table 9. ANOVA table for statement 9: I consider the viewing to be for my teacher training (1) completely meaningless, (7) very instructive

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	.59				
H	1	.59				
TH	1	56.27	13.18**	.06	.24	.77
I(TH)	92	4.82				
U	1	.00				
TU	1	.32				
HU	1	.00				
THU	1	.02				
UI(TH)	92	.44				
R	1	16.25	8.20**	.02	.15	.67
TR	1	.32				
HR	1	.07				
THR	1	1.38				
RI(TH)	92	1.98				
RU	1	1.63				
TRU	1	.07				
HRU	1	.21				
THRU	1	.07				
RUI(TH)	92	.72				

Table 10. ANOVA table for statement 10: When I see myself during the viewing, my conception of myself as a person is (1) completely unchanged, (7) completely changed

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	10.34				
H	1	11.69				
TH	1	.75				
I(TH)	92	4.31				
U	1	.59				
TU	1	.75				
HU	1	1.90				
THU	1	1.15				
UI(TH)	92	1.05				
R	1	3.96				
TR	1	.59				
HR	1	2.84				
THR	1	.13				
RI(TH)	92	1.76				
RU	1	.13				
TRU	1	.02				
HRU	1	.07				
THRU	1	.21				
RUI(TH)	92	1.01				

Table 11. ANOVA table for statement 11: During this viewing my opinion of my lesson is (1) completely changed, (7) completely unchanged

Source	df	MS	F	$\hat{\omega}^2$	f	g
T	1	2.84				
H	1	7.32				
TH	1	9.69				
I(TH)	92	5.11				
U	1	4.38				
TU	1	4.82				
HU	1	2.84				
THU	1	2.50				
UI(TH)	92	1.44				
R	1	34.44	13.72**	.03	.19	.87
TR	1	.00				
HR	1	1.38				
THR	1	5.75				
RI(TH)	92	2.51				
RU	1	.32				
TRU	1	.75				
HRU	1	.75				
THRU	1	.21				
RUI(TH)	92	1.28				

Table 1. Canonical correlations, χ^2 test and redundancy index. Student teachers' and educational experts' assessments during second term: Ego-ego relation. Micro-lessons 1 and 2, perception

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1											
1	.81	.66	424.10	361	.004	.08	.05	.21	.08	.05	.21
2	.75	.57	342.44	324	.011	.05	.03	.13	.05	.03	.13
3	.71	.51	279.60	289	.025	.06	.03	.13	.05	.03	.13
4	.68	.46	225.91	256	.050	.05	.02	.08	.04	.02	.08
5	.61	.37	179.89	225	.092	.04	.02	.08	.09	.03	.13
6	.58	.34	145.31	196	.146	.06	.02	.08	.05	.02	.08
7	.56	.31	113.79	169	.222	.05	.02	.08	.05	.02	.08
8	.48	.23	85.68	144	.322	.04	.01	.04	.06	.02	.08
9	.44	.19	65.63	121	.419	.05	.01	.04	.04	.01	.04
10	.41	.17	49.76	100	.517	.04	.01	.04	.05	.01	.04
11	.38	.14	35.66	81	.623	.07	.01	.04	.05	.01	.04
12	.32	.10	24.03	64	.727	.04	.00	.00	.06	.01	.04
13	.27	.08	15.98	49	.809	.03	.00	.00	.06	.00	.00
14	.24	.06	10.08	36	.875	.07	.00	.00	.04	.00	.00
15	.18	.03	5.78	25	.926	.03	.00	.00	.06	.00	.00
16	.16	.02	3.39	16	.956	.05	.00	.00	.04	.00	.00
17	.13	.02	1.53	9	.980	.04	.00	.00	.04	.00	.00
18	.05	.00	.33	4	.996	.07	.00	.00	.04	.00	.00
19	.04	.00	.10	1	.999	.07	.00	.00	.05	.00	.00
						1.00	.24	1.00	1.00	.24	1.00

Wilks Λ = .004

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 2											
1	.80	.63	424.44	361	.004	.05	.03	.12	.06	.04	.15
2	.76	.57	347.68	324	.010	.06	.04	.15	.04	.02	.08
3	.75	.56	283.95	289	.023	.06	.03	.12	.14	.08	.31
4	.70	.49	222.80	256	.052	.13	.06	.23	.06	.03	.12
5	.65	.42	171.30	225	.103	.05	.02	.08	.04	.02	.08
6	.62	.39	129.57	196	.180	.07	.03	.12	.04	.02	.08
7	.51	.26	92.64	169	.293	.05	.01	.04	.03	.01	.04
8	.43	.19	70.17	144	.395	.03	.01	.04	.03	.01	.04
9	.40	.16	53.95	121	.489	.06	.01	.04	.05	.01	.04
10	.37	.13	40.48	100	.585	.04	.01	.04	.05	.01	.04
11	.35	.12	29.58	81	.676	.05	.01	.04	.08	.01	.04
12	.28	.08	19.82	64	.769	.04	.00	.00	.04	.00	.00
13	.26	.07	13.90	49	.832	.04	.00	.00	.04	.00	.00
14	.23	.05	8.69	36	.891	.08	.00	.00	.08	.00	.00
15	.21	.04	4.62	25	.941	.05	.00	.00	.04	.00	.00
16	.10	.01	1.35	16	.982	.04	.00	.00	.04	.00	.00
17	.07	.01	.55	9	.993	.05	.00	.00	.04	.00	.00
18	.04	.00	.18	4	.998	.04	.00	.00	.04	.00	.00
19	.03	.00	.05	1	.999	.04	.00	.00	.05	.00	.00
						1.00	.26	1.00	1.00	.26	1.00

Wilks Λ = .004

Table 2. Canonical component structure. Student teachers' and educational experts' assessments during second term. Ego-ego relation. Micro-lesson 1, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
1	Emotional state	-.43	-.17	-.25	-.07	-.44	-.15	-.15	.15	-.11	.29
2	Manner	-.33	-.35	-.23	.06	-.45	-.46	-.08	.10	-.11	.25
3	Patience with pupils	-.11	-.10	-.11	-.13	.06	.26	-.31	-.18	.16	-.00
4	Sense of humor	-.15	-.20	-.48	-.00	-.19	-.15	-.19	.11	.05	.23
5	Voice variation	-.46	-.40	-.03	-.43	-.28	-.14	-.11	-.15	-.04	.55
6	Clarity of speech	-.22	-.24	-.05	-.29	.20	.11	.10	.06	.35	.22
7	Vocal pitch	-.13	-.28	-.24	-.33	-.08	-.40	-.24	-.12	.19	-.14
10	Posture	-.11	-.01	-.20	-.16	-.00	.03	-.05	-.04	.03	.53
12	Use of gestures	.58	.58	-.24	-.05	.45	.35	.07	.33	.19	-.03
13	Fiddling with objects (rings etc.)	-.19	-.42	-.18	.05	-.01	-.13	.08	.22	-.47	-.08
14	Factual knowledge	-.16	-.15	-.08	.05	-.46	-.28	.05	-.26	.34	.42
15	Use of stereotype expressions	-.03	.09	.00	-.08	-.35	-.07	-.03	-.17	-.13	.26
16	Use of incomplete sentences	-.17	-.18	-.09	-.11	.17	.12	-.18	-.14	.18	.20
17	Use of grammatically incorrect expressions	-.13	.18	-.18	.21	-.23	-.12	-.02	.10	-.09	.43
18	Dialectal accent	-.35	-.31	.07	.10	-.16	.01	.46	.49	.14	.39
19	Use of difficult concepts without explanations	-.03	.37	.20	.21	-.12	-.20	-.15	-.28	.33	.39
20	Mental blocks (black outs)	-.55	-.27	-.37	.02	-.14	.00	-.33	-.30	.08	.30
21	Legibility of handwriting on blackboard	.09	-.12	.29	.56	.04	.28	-.50	-.11	-.16	.18
22	Use of rhetorical questions	-.06	.24	.01	.14	-.07	-.33	-.12	-.01	.17	-.11

Table 3. Canonical component structure. Student teachers' and educational experts' assessments during second term. Ego-ego relation. Micro-lesson 2, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5	b_6	l_6
1	Emotional state	-.26	-.05	-.28	-.13	.36	.51	.51	-.02	-.31	-.31	-.13	.01
2	Manner	-.31	-.30	-.13	.16	.36	.48	.50	.14	.01	-.22	.18	-.10
3	Patience with pupils	-.14	-.44	-.20	-.03	-.18	.06	.06	-.37	-.28	.02	-.44	.03
4	Sense of humor	-.33	-.33	-.33	-.00	.07	.44	.32	-.22	-.16	.01	-.20	-.16
5	Voice variation	-.10	-.26	-.20	.17	.01	.57	.68	.11	.04	.18	-.38	-.16
6	Clarity of speech	.33	-.15	.12	-.02	.41	.60	.04	-.16	-.24	-.17	-.10	-.18
7	Vocal pitch	.29	-.06	.22	.07	.38	.68	.09	.10	.23	.39	-.11	.15
10	Posture	.03	-.17	-.18	.08	.08	.25	.21	-.18	-.33	-.11	.69	.54
12	Use of gestures	.17	.34	.04	.11	-.41	-.20	-.50	-.65	.15	.20	.25	.18
13	Fiddling with objects (rings etc.)	.19	.09	-.51	-.34	.03	.32	.26	-.03	.13	-.11	-.00	-.04
14	Factual knowledge	-.20	-.08	-.12	.11	.25	.06	.30	-.51	-.41	-.02	-.00	-.24
15	Use of stereotype expressions	-.14	-.15	-.05	.16	.15	.16	.54	-.26	.03	-.14	-.19	.13
16	Use of incomplete sentences	-.04	.01	-.19	-.15	.15	.21	.35	-.16	.36	-.07	-.07	-.34
17	Use of grammatically incorrect expressions	.37	.33	-.01	.16	.01	.06	.46	-.05	.02	-.24	-.07	-.27
18	Dialectal accent	.04	.09	.39	.47	.19	.45	.11	-.20	-.08	-.02	-.22	-.04
19	Use of difficult concepts without explanations	.15	.41	.21	.21	-.05	.19	.16	.12	-.13	-.39	-.16	.15
20	Mental blocks (black outs)	-.21	.42	-.18	-.18	.34	.52	.29	.11	-.16	.11	.09	-.06
21	Legibility of handwriting on blackboard	.19	.21	-.45	-.24	.30	.12	-.23	-.03	.14	.31	-.35	-.10
22	Use of rhetorical questions	.23	.03	-.23	-.24	-.08	.12	.33	-.28	-.19	-.22	.23	-.27

Table 4. Canonical correlations, χ^2 test and redundancy index. Student teachers' and educational experts' assessments during second term. Ego-ego-relation. Micro-lessons 1 and 2, evaluation

Micro-lesson 1

						Ed experts Left side			Student teachers Right side		
Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	V_b	R_{db}	R_t	V_l	R_{dl}	R_t
1	.76	.58	409.92	361	.004	.03	.02	.08	.05	.03	.13
2	.75	.56	344.87	324	.010	.14	.08	.29	.07	.04	.18
3	.71	.51	282.93	289	.024	.06	.03	.11	.07	.03	.13
4	.65	.42	229.77	256	.048	.09	.04	.15	.05	.02	.09
5	.65	.42	188.11	225	.083	.05	.02	.08	.04	.02	.09
6	.58	.34	146.96	196	.143	.05	.02	.08	.04	.01	.05
7	.55	.31	116.20	169	.215	.06	.02	.08	.05	.01	.05
8	.48	.23	88.62	144	.309	.06	.01	.04	.07	.02	.09
9	.45	.20	68.72	121	.402	.06	.01	.04	.05	.01	.05
10	.38	.14	51.66	100	.505	.04	.01	.04	.06	.01	.05
11	.36	.13	40.05	81	.588	.05	.01	.04	.04	.01	.05
12	.35	.12	29.77	64	.674	.04	.01	.04	.05	.01	.05
13	.28	.08	20.00	49	.767	.04	.00	.00	.04	.00	.00
14	.25	.06	13.72	36	.834	.05	.00	.00	.05	.00	.00
15	.24	.06	8.82	25	.890	.04	.00	.00	.05	.00	.00
16	.20	.04	4.22	16	.946	.03	.00	.00	.05	.00	.00
17	.09	.01	1.18	9	.985	.03	.00	.00	.06	.00	.00
18	.07	.00	.55	4	.993	.04	.00	.00	.06	.00	.00
19	.05	.00	.22	1	.997	.04	.00	.00	.05	.00	.00
						1.00	.28	1.00	1.00	.23	1.00

Wilks Λ = .004

Micro-lesson 2

1	.79	.62	373.77	361	.007	.03	.02	.09	.08	.05	.24
2	.74	.54	300.37	324	.019	.12	.07	.32	.08	.05	.24
3	.68	.47	241.76	289	.041	.04	.02	.09	.06	.03	.15
4	.64	.41	194.11	256	.077	.02	.01	.05	.04	.02	.10
5	.61	.37	154.37	225	.129	.05	.02	.09	.05	.02	.10
6	.54	.29	119.72	196	.205	.06	.02	.09	.04	.01	.05
7	.47	.22	94.27	169	.287	.07	.02	.09	.05	.01	.05
8	.46	.21	75.33	144	.369	.08	.02	.09	.08	.01	.05
9	.41	.17	57.56	121	.467	.05	.01	.05	.05	.01	.05
10	.37	.14	43.40	100	.563	.10	.01	.05	.04	.01	.05
11	.34	.11	32.37	81	.651	.05	.01	.05	.04	.01	.05
12	.30	.09	23.28	64	.735	.04	.00	.00	.04	.00	.00
13	.26	.07	16.39	49	.805	.05	.00	.00	.06	.00	.00
14	.22	.05	10.96	36	.865	.05	.00	.00	.05	.00	.00
15	.21	.05	7.15	25	.910	.06	.00	.00	.05	.00	.00
16	.17	.03	3.61	16	.953	.03	.00	.00	.04	.00	.00
17	.12	.02	1.40	9	.982	.05	.00	.00	.11	.00	.00
18	.06	.00	.28	4	.996	.04	.00	.00	.05	.00	.00
19	.01	.00	.01	1	1.000	.03	.00	.00	.04	.00	.00
						1.00	.22	1.00	1.00	.21	1.00

Wilks Λ = .007

Table 5. Canonical component structure. Student teachers' and educational experts' assessments during second term. Ego-ego relation. Micro-lesson 1, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
1	Emotional state	-.37	-.11	.02	-.05	-.13	.34	.25	.16
2	Manner	.02	.44	.45	.05	.22	-.25	-.56	.07
3	Patience with pupils	.15	-.08	-.64	-.15	-.45	18	.10	-.16
4	Sense of humor	-.02	12	.02	.14	-.21	-.32	.36	.16
5	Voice variation	.06	-.16	.46	.02	.11	.03	-.41	-.31
6	Clarity of speech	-.06	.30	.60	-.00	.17	.37	-.16	.20
7	Vocal pitch	.07	.38	.00	-.22	.04	.20	.02	-.28
10	Posture	.03	.44	-.54	.19	-.09	-.08	.22	-.12
12	Use of gestures	.01	-.10	.07	-.06	.52	-.36	-.37	-.06
13	Fiddling with objects (rings etc.)	-.11	-.09	-.03	-.37	.02	-.07	.39	-.35
14	Factual knowledge	-.13	.33	.11	.19	.41	-.30	-.11	.20
15	Use of stereotype expressions	.18	-.01	-.33	-.03	-.21	-.02	.41	-.13
16	Use of incomplete sentences	-.20	.30	-.39	-.23	-.37	.04	.40	-.33
17	Use of grammatically incorrect expressions	-.50	-.02	-.32	-.15	-.17	.52	.18	-.37
18	Dialectal accent	-.03	-.04	-.53	-.58	.20	.28	-.02	.37
19	Use of difficult concepts without explanations	.16	-.16	-.34	-.16	.26	-.12	.40	-.32
20	Mental blocks (black outs)	-.12	-.22	-.03	-.17	-.15	.07	.31	-.03
21	Legibility of handwriting on blackboard	.11	.10	.34	.34	-.09	-.40	-.27	.10
22	Use of rhetorical questions	.17	-.14	.58	.62	.18	.10	.10	-.13

Table 6. Canonical component structure. Student teachers' and educational experts' assessments during second term. Ego-ego relation. Micro-lesson 2, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
1	Emotional state	-.40	.10	.13	.11	-.08	.09	.07	-.07	-.26	-.18
2	Manner	.02	.15	-.38	-.33	-.09	-.37	.01	-.08	.39	-.03
3	Patience with pupils	-.07	.37	.51	.24	-.01	.15	-.02	-.30	.26	-.25
4	Sense of humor	.02	-.42	.06	-.20	-.19	.22	.01	.00	-.26	.22
5	Voice variation	.02	-.20	-.48	-.02	-.04	-.28	.13	.48	-.06	.20
6	Clarity of speech	.11	-.03	-.28	-.04	-.09	-.25	-.30	-.06	-.15	-.11
7	Vocal pitch	-.30	-.05	-.16	.30	.24	-.09	.28	-.12	-.37	-.16
10	Posture	.23	-.05	.40	.00	.19	-.13	.01	-.03	-.09	.29
12	Use of gestures	.11	-.34	-.48	.23	-.11	-.05	.03	.22	.03	.18
13	Fiddling with objects (rings etc.)	-.08	.39	.15	.13	-.02	.03	-.10	-.12	.02	.31
14	Factual knowledge	.01	-.02	-.29	-.29	.10	-.03	-.08	.33	.00	-.31
15	Use of stereotype expressions	-.04	.51	.36	-.00	.39	-.11	-.06	.02	.28	.21
16	Use of incomplete sentences	.02	.28	.53	-.24	-.12	.11	-.12	-.28	-.28	.23
17	Use of grammatically incorrect expressions	-.02	.22	.52	-.26	.18	.31	.16	-.17	.27	.14
18	Dialectal accent	-.08	.42	.09	.28	.13	.60	-.08	.29	-.22	.08
19	Use of difficult concepts without explanations	.35	-.51	.12	.13	.48	.21	.33	-.03	-.11	.28
20	Mental blocks (black outs)	-.26	-.09	-.04	-.27	.03	.35	.09	.20	-.30	.05
21	Legibility of handwriting on blackboard	-.12	.06	-.57	-.34	.26	-.16	-.25	.01	-.13	.09
22	Use of rhetorical questions	-.14	-.15	-.24	.05	.04	.01	.01	.15	.04	-.40

Table 7. Canonical correlations, χ^2 test and redundancy index. Student teachers' and educational experts' assessments during second term. Ego-pupil relation. Micro-lessons 1 and 2, perception

Micro-lesson 1

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side v_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
1	.88	.77	550.49	441	.001	.09	.07	.23	.05	.04	.16
2	.82	.68	443.50	400	.002	.07	.05	.16	.07	.04	.16
3	.75	.56	361.00	361	.007	.03	.02	.06	.03	.02	.08
4	.73	.53	300.79	324	.017	.03	.02	.06	.05	.03	.12
5	.70	.49	244.83	289	.034	.15	.08	.26	.06	.03	.12
6	.65	.42	196.00	256	.070	.06	.02	.06	.05	.02	.08
7	.60	.36	156.27	225	.119	.04	.01	.03	.04	.02	.08
8	.57	.33	123.70	196	.186	.03	.01	.03	.03	.01	.04
9	.53	.28	94.56	169	.276	.03	.01	.03	.04	.01	.04
10	.47	.22	70.56	144	.383	.03	.01	.03	.04	.01	.04
11	.42	.18	51.95	121	.493	.05	.00	.00	.04	.01	.04
12	.40	.16	37.47	100	.601	.03	.00	.00	.05	.01	.04
13	.31	.10	24.46	81	.717	.02	.00	.00	.04	.00	.00
14	.28	.08	17.01	64	.793	.06	.01	.03	.09	.01	.04
15	.23	.05	11.01	49	.861	.02	.00	.00	.06	.00	.00
16	.20	.04	7.08	36	.908	.05	.00	.00	.03	.00	.00
17	.17	.03	4.25	25	.944	.03	.00	.00	.05	.00	.00
18	.13	.02	2.02	16	.973	.08	.00	.00	.05	.00	.00
19	.07	.01	.83	9	.989	.03	.00	.00	.04	.00	.00
20	.07	.01	.45	4	.994	.03	.00	.00	.06	.00	.00
21	.04	.00	.11	1	.999	.04	.00	.00	.05	.00	.00
						1.00	.31	1.00	1.00	.25	1.00

Wilks Λ = .001

Micro-lesson 2

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	v_b	R_{db}	R_t	V_l	R_{dl}	R_t
1	.84	.71	562.97	441	.001	.05	.04	.13	.06	.04	.14
2	.82	.67	473.36	400	.002	.07	.05	.16	.07	.04	.14
3	.78	.60	391.39	361	.005	.12	.07	.23	.08	.05	.17
4	.71	.50	323.32	324	.012	.02	.01	.03	.05	.03	.10
5	.68	.46	272.35	289	.025	.04	.02	.06	.07	.03	.10
6	.66	.43	226.95	256	.046	.06	.02	.06	.05	.02	.07
7	.61	.37	185.76	225	.080	.05	.02	.06	.04	.01	.03
8	.60	.36	152.01	196	.126	.04	.02	.06	.04	.01	.03
9	.57	.33	119.37	169	.197	.05	.02	.06	.03	.01	.03
10	.48	.23	90.16	144	.293	.03	.01	.03	.04	.01	.03
11	.46	.21	70.71	121	.382	.07	.01	.03	.03	.01	.03
12	.41	.17	53.42	100	.483	.03	.01	.03	.04	.01	.03
13	.37	.14	40.20	81	.579	.02	.00	.00	.05	.01	.03
14	.36	.13	29.18	64	.672	.03	.00	.00	.05	.01	.03
15	.31	.10	19.23	49	.770	.06	.00	.00	.06	.01	.03
16	.26	.07	11.59	36	.854	.02	.00	.00	.04	.00	.00
17	.24	.06	6.41	25	.916	.04	.00	.00	.03	.00	.00
18	.13	.02	2.00	16	.973	.03	.00	.00	.05	.00	.00
19	.09	.01	.81	9	.990	.07	.00	.00	.04	.00	.00
20	.06	.00	.23	4	.997	.06	.00	.00	.04	.00	.00
21	.00	.00	.00	1	1.000	.02	.00	.00	.04	.00	.00
						1.00	.31	1.00	1.00	.29	1.00

Wilks Λ = .001

Table 8. Canonical component structure. Student teachers' and educational experts assessments during second term. Ego-pupil relation. Micro-lesson 1, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_5	b_5	l_5
23	Explanations and descriptions	.07	.22	-.14	-.09	.10	.28	.30	.04	.56	.41
25	Helping pupils	-.06	.16	-.15	-.06	.31	-.19	-.29	-.25	-.21	-.06
26	Non-verbal contact (nodding	-.41	-.47	-.17	.04	.16	.21	-.20	-.08	.26	-.06
27	Non-verbal contact (pointing)	-.36	-.48	.59	.59	-.17	-.17	-.01	-.00	.09	.33
29	Address without eye-contact	-.06	-.09	-.02	-.14	.12	.15	-.18	.29	-.10	.07
31	Interruption of pupils' speech	.46	.13	.18	.33	-.10	.16	.02	.42	-.04	.04
32	Ability to maintain own authority	-.13	.04	-.20	.09	-.01	-.04	-.26	-.37	-.33	.03
35	Getting the pupils to work	-.26	-.20	-.06	-.24	-.13	.15	-.20	-.24	.40	.40
37	Attention directed towards passive pupils	-.05	-.27	.11	-.07	.14	.05	.14	.25	.47	.48
38	Contact between student teacher and pupil	.12	-.09	.05	-.15	-.18	.08	-.13	-.08	.63	.41
39	Confusion in class	.59	.32	.46	.56	.33	.28	.06	.13	.11	.20
40	Pupils' conversational discipline	-.54	-.31	-.47	-.09	-.13	-.07	-.06	.04	.33	.05
41	Pupils' concentration	.31	.29	.34	.16	.19	.04	-.13	.00	.45	.28
42	Independent work (pupils)	-.17	-.13	-.10	.08	-.19	.32	-.20	-.27	.58	.11
43	Pupils' ability to infer	.05	.05	.07	.32	-.11	.21	.28	.16	.33	.03
44	Estimation of pupils' initial knowledge	.18	.06	-.12	-.07	-.14	-.15	-.15	.05	.64	-.28
45	Questioning technique: fill-in questions	.17	-.21	-.20	.14	-.09	.19	-.05	-.40	.07	-.10
46	Questioning technique: irrelevant questions	.02	.12	-.20	-.12	-.15	.13	.06	.20	.41	.17
47	Questioning technique: imprecise questions	.16	.12	-.33	-.23	.02	-.00	.21	.20	.42	.16
48	Questioning technique: difficult questions	.12	-.08	-.11	-.41	.30	.22	-.03	-.13	-.60	.11
49	Pupils' irrelevant occupations	-.68	-.24	-.44	-.29	-.27	.10	.05	.09	-.09	-.24

Table 9. Canonical component structure. Student teachers' and educational experts assessments during second term. Ego-pupil relation. Micro-lesson 2, perception

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5
23	Explanations and descriptions	.15	-.08	.17	.20	.47	-.02	-.04	.58	.01	-.33
25	Helping pupils	.24	.31	.16	-.07	-.53	-.13	.06	.29	.02	.48
26	Non-verbal contact (nodding)	.28	.29	.44	.33	-.46	-.53	.07	.15	-.02	-.29
27	Non-verbal contact (pointing)	.82	.72	.09	.00	-.01	.23	.12	.25	-.13	-.17
29	Address without eye-contact	.11	.07	-.01	.06	-.04	-.14	-.14	-.11	.06	-.34
31	Interruption of pupils' speech	.07	.20	.25	.08	.18	.19	-.01	-.05	.37	-.27
32	Ability to maintain own authority	-.21	.09	.16	.36	-.30	-.03	-.02	-.15	.33	.06
35	Getting the pupils to work	.02	.22	.18	-.09	.11	.27	-.17	.09	-.11	-.38
37	Attention directed towards passive pupils	.17	.15	.11	-.19	.17	-.03	.00	-.18	-.29	-.41
38	Contact between student teacher and pupil	-.05	-.07	.33	.19	.45	.32	-.19	.19	-.30	-.17
39	Confusion in class	.05	.01	.42	.46	.58	.47	-.20	-.17	.03	.05
40	Pupils' conversational discipline	-.06	-.09	-.17	.24	.11	-.12	-.17	.51	.39	-.01
41	Pupils' concentration	.03	-.03	.53	.65	.55	.40	-.07	.03	-.12	-.27
42	Independent work (pupils)	.02	.13	.15	.05	.38	.48	.06	.22	-.28	-.40
43	Pupils' ability to infer	.07	.05	.47	.20	.37	-.16	.32	.15	-.14	-.13
44	Estimation of pupils' initial knowledge	.12	.38	.11	.18	.29	.03	-.07	.03	-.24	-.18
45	Questioning technique: fill-in questions	.11	.39	-.21	.20	.22	.14	.18	.05	.06	.19
46	Questioning technique: irrelevant questions	.26	.16	.15	.18	.06	.13	-.05	.18	-.26	.24
47	Questioning technique: imprecise questions	.24	.15	.13	.07	.13	.09	-.24	.19	-.31	.06
48	Questioning technique: difficult questions	-.01	.06	.05	.12	-.18	-.19	.10	.23	.29	.23
49	Pupils' irrelevant occupations	-.05	.04	-.45	-.38	-.53	-.12	.34	.10	-.01	-.22

Table 10. Canonical correlations, χ^2 test and redundancy index. Student teachers' and educational experts' assessments during second term. Ego-pupil relation. Micro-lessons 1 and 2, evaluation

Micro-lesson 1

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
1	.79	.63	411.46	441	.004	.07	.05	.24	.06	.04	.19
2	.72	.52	338.22	400	.010	.03	.02	.10	.05	.03	.14
3	.66	.44	284.79	361	.021	.04	.02	.10	.04	.02	.10
4	.64	.41	242.47	324	.037	.04	.02	.10	.05	.02	.10
5	.62	.38	203.97	289	.062	.12	.04	.19	.06	.02	.10
6	.60	.36	168.54	256	.101	.04	.01	.05	.05	.02	.10
7	.55	.30	135.56	225	.158	.03	.01	.05	.05	.01	.05
8	.53	.29	109.58	196	.225	.03	.01	.05	.05	.01	.05
9	.51	.26	84.81	169	.315	.03	.01	.05	.05	.01	.05
10	.44	.20	62.65	144	.426	.04	.01	.05	.04	.01	.05
11	.36	.13	46.47	121	.531	.08	.01	.05	.05	.01	.05
12	.35	.12	36.04	100	.612	.04	.01	.05	.06	.01	.05
13	.32	.10	26.42	81	.698	.05	.01	.05	.04	.01	.05
14	.30	.09	18.36	64	.779	.03	.00	.00	.05	.00	.00
15	.25	.06	11.61	49	.854	.03	.00	.00	.05	.01	.05
16	.21	.04	6.89	36	.911	.05	.00	.00	.05	.00	.00
17	.15	.02	3.61	25	.952	.07	.00	.00	.05	.00	.00
18	.13	.02	1.90	16	.974	.03	.00	.00	.06	.00	.00
19	.09	.01	.75	9	.990	.04	.00	.00	.03	.00	.00
20	.04	.00	.18	4	.998	.06	.00	.00	.04	.00	.00
21	.03	.00	.05	1	.999	.04	.00	.00	.04	.00	.00
						1.00	.21	1.00	1.00	.21	1.00

Wilks Λ =.004

Micro-lesson 2

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
1	.81	.66	395.33	441	.005	.07	.05	.24	.06	.04	.19
2	.74	.55	317.00	400	.013	.03	.02	.10	.05	.03	.14
3	.65	.43	258.79	361	.030	.04	.02	.10	.04	.02	10
4	.63	.40	218.00	324	.052	.04	.02	.10	.05	.02	.10
5	.60	.35	180.70	289	.086	.12	.04	.19	.06	.02	.10
6	.57	.32	148.61	256	.132	.04	.01	.05	.05	.02	.10
7	.53	.28	120.04	225	.195	.03	.01	.05	.05	.01	.05
8	.46	.21	96.20	196	.270	.03	.01	.05	.05	.01	.05
9	.45	.20	78.74	169	.343	.03	.01	.05	.05	.01	.05
10	.40	.16	62.39	144	.428	.04	.01	.05	.04	.01	.05
11	.38	.14	49.51	121	.510	.08	.01	.05	.04	.01	.05
12	.36	.13	38.23	100	.595	.04	.01	.05	.06	.01	.05
13	.32	.10	27.90	81	.684	.05	.01	.05	.04	.00	.00
14	.30	.09	20.20	64	.760	.03	.00	.00	.05	.01	.05
15	.24	.06	13.20	49	.836	.03	.00	.00	.05	.00	.00
16	.23	.05	8.81	36	.887	.05	.00	.00	.05	.00	.00
17	.19	.04	4.92	25	.935	.07	.00	.00	.06	.00	.00
18	.14	.02	2.15	16	.971	.03	.00	.00	.03	.00	.00
19	.09	.01	.79	9	.989	.06	.00	.00	.04	.00	.00
20	.05	.00	.21	4	.997	.04	.00	.00	.04	.00	.00
21	.00	.00	.00	1	1.000	1.00	.21	1.00	1.00	.21	1.00

Wilks Λ = .005

Table 11. Canonical component structure. Student teachers' and educational experts' assessments during second term. Ego-pupil relation. Micro-lesson 1, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5	b_6	l_6
23	Explanations and descriptions	.15	.24	-.20	.23	-.24	.50	.03	-.29	.45	-.04	-.08	.21
25	Helping pupils	-.06	-.06	-.07	.48	.08	.15	-.27	-.14	-.57	-.07	-.11	-.11
26	Non-verbal contact (nodding)	-.17	-.21	-.10	-.17	.13	-.22	-.15	-.19	-.49	-.41	.13	-.27
27	Non-verbal contact (pointing)	-.08	-.37	-.02	.32	.09	-.20	-.15	.26	-.62	.04	.09	-.20
29	Address without eye-contact	.40	.20	.20	.06	.10	.07	.06	-.06	.45	.01	.23	41
31	Interruption of pupils' speech	.50	.50	.19	.09	.10	-.14	.29	.27	-.02	-.25	.28	.28
32	Ability to maintain own authority	.27	-.23	-.08	-.13	-.01	.11	-.17	-.33	.04	.22	-.18	.33
35	Getting the pupils to work	.05	.06	.15	.05	-.08	-.16	.03	-.17	.05	.22	.18	.20
37	Attention directed towards passive pupils	.10	.23	-.25	-.10	-.07	-.26	-.35	-.13	.06	.41	-.26	-.25
38	Contact between student teacher and pupil	-.11	.14	.03	-.20	-.32	-.01	.12	.32	.37	.06	-.03	.14
39	Confusion in class	.56	.47	-.03	.17	.20	.06	.11	.30	.03	-.07	.18	.06
40	Pupils' conversational discipline	-.24	.21	-.19	-.15	-.08	-.11	.05	-.02	-.14	.09	-.04	-.18
41	Pupils' concentration	.19	.06	-.17	-.05	-.07	.18	.26	-.04	.41	.31	.03	.02
42	Independent work (pupils)	.21	.07	-.14	.28	-.46	-.32	.03	.29	.12	.11	.02	.18
43	Pupils' ability to infer	-.01	.13	.23	-.12	-.45	-.21	.21	-.20	.38	.09	-.13	-.27
44	Estimation of pupils' initial knowledge	.10	.13	-.12	-.02	-.34	-.06	-.05	.05	.37	-.25	-.07	-.03
45	Questioning technique: fill-in questions	.09	.11	.18	-.48	.06	.08	-.11	.00	-.48	.42	.14	-.24
46	Questioning technique: irrelevant questions	.36	-.24	-.06	-.17	.16	.30	.31	.44	.34	.11	-.40	-.22
47	Questioning technique: imprecise questions	.14	.01	-.43	-.26	-.08	.32	.44	.10	.38	-.03	.02	.13
48	Questioning technique: difficult questions	-.18	-.41	.10	-.01	-.29	-.12	.20	.22	-.35	-.06	-.47	.23
49	Pupils' irrelevant occupations	-.52	-.15	-.12	.31	-.11	-.27	.06	-.25	-.18	.34	.31	.15

Table 12. Canonical component structure. Student teachers' and educational experts' assessments during second term Ego-pupil relation. Micro-lesson 2, evaluation

		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_5	l_5	b_6	l_6
23	Explanations and descriptions	.15	.24	-.20	.23	-.24	.50	.03	-.28	.45	-.04	-.08	-.21
25	Helping pupils	-.66	-.06	-.07	.48	.08	.15	-.27	-.14	-.57	-.07	-.11	-.11
26	Non-verbal contact (nodding)	-.17	-.21	-.01	-.17	.13	-.22	-.15	-.19	-.49	-.41	.13	-.27
27	Non-verbal contact (pointing)	-.08	-.37	-.02	.32	.10	-.20	-.15	.26	-.62	.04	.09	-.20
29	Address without eye-contact	.40	.20	.20	.06	.10	.07	.06	-.06	.45	.01	-.23	.41
31	Interruption of pupils' speech	.50	.50	.19	.09	.10	-.14	.29	.27	-.02	.27	.28	-.25
32	Ability to maintain own authority	.27	-.23	-.08	-.13	-.01	.11	-.17	-.33	.04	.22	-.18	.33
35	Getting the pupils to work	.05	.06	.15	.05	-.08	-.16	.03	-.17	.05	.22	.18	.20
37	Attention directed towards passive pupils	.10	.23	-.25	-.10	-.07	-.26	-.35	-.13	-.06	.41	-.26	-.25
38	Contact between student teacher and pupil	-.11	.14	.03	-.20	-.32	-.01	.12	.07	.37	.32	-.03	.06
39	Confusion in class	.56	.47	-.03	.16	.20	.06	.11	.30	.03	-.07	.18	.06
40	Pupils' conversational discipline	-.24	.21	-.19	-.15	-.08	-.11	.05	-.02	-.14	.09	-.04	-.18
41	Pupils' concentration	.19	.06	-.17	-.05	-.07	.18	.26	-.04	.41	.31	.03	.02
42	Independent work (pupils)	.21	.07	-.14	.28	-.46	.01	.03	-.33	.12	.29	.02	.11
43	Pupils' ability to infer	-.01	.13	.23	-.12	-.45	-.21	.21	-.20	.38	.09	-.13	-.27
44	Estimation of pupils' initial knowledge	.10	.13	-.12	-.02	-.34	-.06	-.05	.05	.37	-.25	-.07	-.03
45	Questioning technique: fill-in questions	.09	.11	.18	-.47	.06	.08	-.11	.00	-.48	.42	.14	-.24
46	Questioning technique: irrelevant questions	.36	-.24	.06	-.17	.16	.30	.31	.44	.34	.11	-.40	-.22
47	Questioning technique: imprecise questions	.14	.01	-.43	-.26	-.08	.32	.44	.10	.38	-.03	.02	.13
48	Questioning technique: difficult questions	-.18	-.41	.10	-.01	-.29	-.12	.20	.22	-.35	-.06	-.47	.23
49	Pupils' irrelevant occupations	-.52	-.15	-.12	.31	-.11	-.27	.06	-.25	-.18	.34	.31	.15

Table 13. Canonical correlations, χ^2 test and redundancy index. Student teachers' and educational experts' assessments during second term. Ego-NPO relation. Micro-lessons 1 and 1, perception

Micro-lesson 1

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
1	.88	.77	244.83	121	.053	.12	.09	.36	.12	.09	.41
2	.58	.34	122.67	100	.230	.10	.04	.16	.09	.03	.14
3	.51	.26	87.94	81	.349	.29	.08	.32	.16	.04	.18
4	.45	.20	52.58	64	.473	.08	02	.08	.09	.02	.09
5	.42	.18	44.08	49	.590	.06	.01	.04	.08	.02	.09
6	.38	.15	27.53	36	.719	.04	.01	.04	.04	.01	.05
7	.29	.09	14.26	25	.843	.06	01	.04	.08	.01	.05
8	.24	.06	6.69	16	.923	.06	.00	.00	.11	.01	.05
9	.12	.02	1.79	9	.979	.05	.00	00	.10	.00	00
10	.07	.01	.52	4	.994	.09	.00	.00	.08	00	.00
11	.03	.00	.10	1	999	.06	.00	.00	.06	.00	.00
						1.00	25	1.00	1.00	22	1.00

Wilks Λ = .053

Micro-lesson 2

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
1	.66	.43	139.70	121	.188	.10	.04	.29	.14	.06	.43
2	.56	.32	92.14	100	.332	.12	.04	.29	.08	.03	.21
3	.46	.21	60.26	81	.486	.13	03	.21	.09	.02	.14
4	.38	.14	40.91	64	.613	.05	01	.07	.07	.01	.07
5	.37	.14	28.17	49	.714	.10	01	.07	.08	.01	.07
6	.27	.07	15.72	36	828	.06	.00	.00	.07	.01	.07
7	.23	.05	9.50	25	.893	.04	00	.00	.06	.01	[illegible]
8	.19	.04	4.90	16	.943	.19	.01	.07	.10	.00	[illegible]
9	.12	.02	1.87	9	.978	.11	.00	.00	.09	.00	.00
10	.08	.01	.59	4	.993	.05	.00	.00	.18	.00	.00
11	.01	.00	.02	1	1.000	.05	.00	.00	.06	.00	.00
						1.00	.14	1.00	1.00	.14	1.00

Wilks Λ = .188

Table 14. Canonical correlations, χ^2 test and redundancy index. Student teachers' and educational experts' assessments during second term. Ego-NPO relation. Micro-lessons 1 and 2, evaluation

Micro-lesson 1

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
1	.64	.40	127.87	121	.216	.11	04	.33	.09	.04	.33
2	.52	.27	84.71	100	.363	.06	.02	.17	.08	.02	.17
3	.45	.20	58.46	81	.497	.11	.02	.17	.07	.01	.08
4	.38	.14	39.75	64	.621	.10	.01	.08	.09	.01	.08
5	.36	.13	26.90	49	.725	.11	.01	.08	.08	.01	.08
6	.27	.07	15.56	36	.830	.07	.01	.08	.13	.01	.08
7	.20	.06	9.20	25	.896	.06	.00	.00	.11	.01	.08
8	.19	.03	5.71	16	.934	.08	.00	.00	.09	.00	.00
9	.17	.03	2.57	9	.970	.07	.00	.00	.10	.00	.00
10	.05	.00	.26	4	.997	.08	.00	.00	.06	.00	.00
11	.03	.00	.09	1	.999	.17	.00	.00	.11	.00	.00
						1.00	.12	1.00	1.00	.12	1.00

Wilks Λ = 216

Micro-lesson 2

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
1	.57	.33	123.40	121	.228	.18	.06	.43	.09	03	25
2	.53	.28	99.15	100	.340	.07	02	.14	.09	03	.25
3	.48	.23	[illegible]	81	.472	.06	.01	07	.12	.03	.25
4	.43	.19	41.16	64	.611	.10	02	14	.10	02	.17
5	.31	.10	24.07	49	.750	.12	.01	.07	.07	.01	.08
6	.29	.08	15.41	36	.831	.06	.01	07	.08	.01	.08
7	.22	.05	8.31	25	.905	.07	.00	.00	.08	.00	00
8	.19	.04	4.21	16	.951	.09	.00	00	.10	.00	00
9	.12	.01	1.25	9	985	.05	.00	00	.19	.00	.00
10	.04	.00	.14	4	.998	.11	00	00	.10	.00	.00
11	.00	00	.00	1	1.000	.07	00	.00	.07	00	00
						1.00	14	1.00	1.00	12	1.00

Wilks' Λ = 228

Table 15. Canonical component structure. Student teachers' and educational experts' assessments during second term. Ego-NPO relation. Micro-lessons 1 and 2, perception

Micro-lesson 1

		b_1	l_1	b_2	l_2	b_3	l_3
50	Assessment of own teaching	.07	-.13	-.53	-.32	-.37	-.54
51	Degree of TV studio's effect on teaching	.08	-.04	.04	-.34	-.63	-.21
52	General planning of the lesson	-.37	-.23	-.53	-.20	-.49	-.40
53	Detailed planning of the lesson	.16	.15	.11	-.08	.71	.61
54	Use of teaching aids	.18	.26	.07	.06	.35	.57
55	Use of blackboard	.97	.99	.13	.03	-.07	.04
56	Arrangement on blackboard	-.20	-.37	-.26	-.15	-.23	.02
57	Presentation of subject	-.18	-.02	-.22	-.18	-.73	-.34
58	Communication of hard facts in the teaching	-.16	-.06	-.26	.39	-.88	-.37
59	Linking up with pupils' initial knowledge	-.13	-.13	-.59	-.59	-.38	-.17
60	Digressions in presentation of subject	-.31	-.00	.01	.41	-.48	-.48

Micro-lesson 2

		b_1	l_1	b_2	l_2	b_3	l_3
50	Assessment of own teaching	.06	.03	-.65	-.56	-.54	-.14
51	Degree of TV studio's effect on teaching	.15	.11	-.40	.35	-.39	-.37
52	General planning of the lesson	-.20	-.24	-.13	.08	-.34	-.31
53	Detailed planning of the lesson	.31	.22	-.02	-.04	.32	.26
54	Use of teaching aids	.05	.39	.54	.37	-.03	.34
55	Use of blackboard	.91	.94	.03	.05	-.09	.11
56	Arrangement on blackboard	-.31	-.50	-.14	-.02	.28	.35
57	Presentation of subject	-.03	.01	-.31	-.10	-.20	-.53
58	Communication of hard facts in the teaching	.01	-.10	-.06	.47	-.30	.01
59	Linking up with pupils' initial knowledge	.08	.09	-.56	-.26	-.42	-.25
60	Digressions in presentation of subject	-.12	-.19	.21	-.02	-.57	.20

Table 16. Canonical component structure. Student teachers' and educational experts' assessments during second term. Ego-NPO relation. Micro-lessons 1 and 2, evaluation

Micro-lesson 1

		b_1	l_1	b_2	l_2	b_3	l_3
50	Assessment of own teaching	-.16	-.23	-.16	-.24	.15	-.08
51	Degree of TV studio's effect on teaching	-.11	.02	.43	.30	-.19	.35
52	General planning of the lesson	-.63	.13	-.25	.31	.23	-.00
53	Detailed planning of the lesson	.49	.60	-.31	-.24	-.05	.11
54	Use of teaching aids	.56	.03	.04	.21	-.13	.18
55	Use of blackboard	-.33	-.45	.13	-.26	.40	.64
56	Arrangement on blackboard	.15	-.25	.35	.07	.55	-.10
57	Presentation of subject	-.22	.11	.09	-.38	.21	-.11
58	Communication of hard facts in the teaching	.07	-.00	.29	-.45	-.18	-.29
59	Linking up with pupils' initial knowledge	-.15	.11	.07	-.34	.43	-.03
60	Digressions in presentation of subject	-.04	-.55	.17	.02	.99	-.19

Micro-lesson 2

		b_1	l_1	b_2	l_2	b_3	l_3
50	Assessment of own teaching	.27	-.30	.07	-.06	-.34	.10
51	Degree of TV studio's effect on teaching	-.07	.03	-.13	.09	-.12	-.18
52	General planning of the lesson	.34	-.21	.38	.27	.13	.43
53	Detailed planning of the lesson	-.73	-.24	-.29	.08	-.18	-.05
54	Use of teaching aids	-.22	.16	.54	.79	.19	-.11
55	Use of blackboard	.12	.47	.00	.43	.24	.56
56	Arrangement on blackboard	.78	.68	-.34	-.23	.28	.36
57	Presentation of subject	.52	-.19	-.14	.06	.05	.72
58	Communication of hard facts in the teaching	.25	.20	.01	-.13	.06	-.22
59	Linking up with pupils' initial knowledge	.51	.14	.27	-.04	.02	.31
60	Digressions in presentation of subject	.08	-.07	.24	.03	-.58	.73

Table 17. Canonical correlations, χ^2 test and redundancy index. Student teachers' and educational experts' assessements during second term. Pupil-ego relation. Micro-lessons 1 and 2, perception, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1, perception											
1	.40	.16	28.13	16	.732	.38	.06	.67	.31	.05	.56
2	.26	.07	12.28	9	.873	.33	.02	.22	.31	.02	.22
3	.24	.06	5.74	4	.939	.12	.01	.11	.27	.02	.22
4	.07	.00	.47	1	.995	.17	.00	.00	.11	.00	.00
						1.00	.09	1.00	1.00	.09	1.00

Wilks Λ = .732

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	V_b	R_{db}	R_t	V_l	R_{dl}	R_t
Micro-lesson 2, perception											
1	.34	.11	19.67	16	.805	.37	.04	.57	.31	.03	.50
2	.27	.07	8.89	9	.906	.25	.02	.29	.25	.02	.33
3	.14	.02	2.18	4	.976	.30	.01	.14	.23	.01	.17
4	.06	.00	.31	1	.997	.07	.00	.00	.22	.00	.00
						1.00	.07	1.00	1.00	.06	1.00

Wilks Λ = .805

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	V_b	R_{db}	R_t	V_l	R_{dl}	R_t
Micro-lesson 1, evaluation											
1	.25	.06	9.21	16	.903	.39	.02	.67	.23	.01	.33
2	.15	.02	3.33	9	.963	.16	.00	.00	.31	.01	.33
3	.11	.01	1.13	4	.986	.23	.00	.00	.30	.00	.00
4	.03	.00	.06	1	.999	.21	.00	.00	.16	.00	.00
						1.00	.03	1.00	1.00	.03	1.00

Wilks Λ = .903

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	V_b	R_{db}	R_t	V_l	R_{dl}	R_t
Micro-lesson 2, evaluation											
1	.25	.06	10.70	16	.888	.23	.01	.33	.22	.01	.33
2	.17	.03	4.81	9	.948	.19	.01	.33	.20	.01	.33
3	.15	.02	2.27	4	.975	.35	.01	.33	.29	.01	.33
4	.04	.00	.17	1	.998	.24	.00	.00	.30	.00	.00
						1.00	.03	1.00	1.00	.03	1.00

Wilks Λ = .888

Table 18. Canonical correlations, χ^2 test and redundancy index. Student teachers' and educational experts' assessements during second term. Pupil-pupil relation. Micro-lessons 1 and 2, perception, evaluation

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1, perception											
1	.51	.26	33.07	16	.693	.56	.14	.93	.45	.12	.92
2	.20	.04	6.05	9	.935	.12	.01	.07	.18	.01	.08
3	.15	.02	2.54	4	.972	.05	.00	.00	.25	.00	.00
4	.07	.01	.50	1	1.000	.26	.00	.00	.13	.00	.00
						1.00	.15	1.00	1.00	.13	1.00

Wilks Λ = .693

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	V_b	R_{db}	R_t	V_l	R_{dl}	R_t
Micro-lesson 2, perception											
1	.51	.26	40.04	16	.642	.63	.16	.84	.40	.10	.71
2	.32	.11	13.16	9	.865	.17	.02	.11	.33	.04	.29
3	.15	.02	2.06	4	.969	.15	.00	.00	.18	.00	.00
4	.09	.01	.72	1	.992	.05	.00	.00	.00	.00	.00
					1.000	1.00	.19	1.00	1.00	.14	1.00

Wilks Λ = .642

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	V_b	R_{db}	R_t	V_l	R_{dl}	R_t
Micro-lesson 1, evaluation											
1	.32	.10	15.33	16	.844	.22	.02	.58	.25	.03	.75
2	.19	.04	5.62	9	.940	.40	.01	.25	.27	.01	.25
3	.15	.02	2.24	4	.976	.17	.00	[illegible]	.32	.01	.00
4	.05	.00	.24	1	.997	.22	.00	.00	.16	.00	.00
						1.00	.04	1.00	1.00	.04	1.00

Wilks Λ = .844

Roots	R_c	R_c^2	Observed χ^2 value	df	Λ	V_b	R_{db}	R_t	V_l	R_{dl}	R_t
Micro-lesson 2, evaluation											
1	.36	.13	20.82	16	.795	.48	.06	.75	.47	.06	.86
2	.22	.05	8.40	9	.911	.28	.01	.13	.13	.01	.14
3	.20	.04	3.85	4	.958	.11	.00	.00	.18	.00	.00
4	.04	.00	.14	1	.998	.14	.00	.00	.22	.00	.00
						1.00	.08	1.00	1.00	.07	1.00

Wilks Λ = .795

Table 19. Canonical component structure. Student teachers' and educational experts' assessements during second term. Pupil-ego relation. Micro-lessons 1 and 2, perception, evaluation

	Micro-lesson 1, perception b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	Micro-lesson 2, perception b_1	l_2	b_2	l_2	b_3	l_3	b_4	l_4
65 Obeying student teacher's instructions	-.30	-.28	.80	.28	-.22	.91	-.48	.13	.57	.84	.07	.38	.36	.36	-.18	-.14
68 Contradiction by pupils	-.65	-.62	.64	.42	.42	.30	.03	.56	.42	.66	-.53	.22	.69	-.10	.29	.71
69 Pupils ask questions concerning the subject	.98	.87	.01	.18	-.05	.35	.17	.30	[illegible]	.74	.81	.85	.03	-.52	.10	.01
71 Pupils give answers other than those intended	-.23	-.18	.53	.97	-.50	.20	.64	.06	.81	.26	.26	.27	.33	.72	.41	.59

	Micro-lesson 1, evaluation b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	Micro-lesson 2, evaluation b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
65 Obeying student teacher's instructions	-.64	.64	-.33	.76	.03	-.10	-.70	.04	-.25	.58	.47	-.14	-.14	.37	.84	.72
68 Contradiction by pupils	-.09	-.62	-.32	.60	.93	-.08	.16	.50	-.05	.41	.67	.61	.73	.58	-.13	.36
69 Pupils ask questions concerning the subject	-.79	.23	.92	-.51	.25	-.65	.22	.51	.78	.17	-.21	-.40	.43	.71	.41	-.55
71 Pupils give answers other than those intended	.73	.25	.42	-.12	.01	.88	-.54	.39	.49	.60	.18	.48	-.81	-.41	-.27	-.49

Table 20. Canonical component structure. Student teachers' and educational experts' assessements during second term, pupil-pupil relation. Micro-lessons 1 and 2, perception, evaluation

	Micro-lesson 1, perception b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	Micro-lesson 2, perception b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
72 Pupils interrupt each other	.81	.96	.35	.16	.41	-.20	.24	-.14	.94	.89	.25	.29	.16	-.19	-.19	-.29
73 Talk to each other about things outside the subject	.40	.56	.27	-.13	.17	.59	.86	.57	.60	.37	.55	.73	.38	.52	-.03	-.25
74 Play together	.85	.55	-.34	-.55	.06	.58	.40	-.25	.76	.46	.55	.82	.10	-.14	.32	.30
75 Discuss the subject	-.85	-.51	-.43	.60	.10	.52	-.30	-.32	-.85	-.67	.10	.14	-.47	-.62	-.23	-.38

	Micro-lesson 1, evaluation b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	Micro-lesson 2, evaluation b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
72 Pupils interrupt each other	-.39	.27	.36	-.14	.51	.94	-.68	-.10	.93	.66	.20	.67	.25	-.31	.20	-.01
73 Talk to each other about things outside the subject	.07	.46	-.77	.84	-.49	-.30	-.41	.04	-.34	-.67	-.93	.08	.17	.66	-.07	.31
74 Play together	.26	.17	.88	-.48	-.07	.46	-.38	.73	.76	.96	.46	-.02	.42	-.03	.16	.27
75 Discuss the subject	-.80	.83	.29	-.35	-.44	.29	.29	-.32	.60	-.24	.13	-.16	-.39	-.45	.69	.84

Table 21. Canonical correlations, χ^2 test and redundancy index. Student teachers' and educational experts' assessaments during second term. Pupil-NPO relation. Micro-lessons 1 and 2, perception, evaluation

Roots	R_c	R_c^2	Observed χ^2 value		Λ	Ed experts Left side V_b	R_{db}	R_t	Student teachers Right side V_l	R_{dl}	R_t
Micro-lesson 1, perception											
1	.36	.13	18.78	16	.813	.25	.03	.60	.33	.04	.67
2	.18	.03	5.92	9	.937	.10	.00	.00	.26	.01	.17
3	.14	.02	3.01	4	.967	.07	.00	.00	.23	.00	.00
4	.12	.01	1.27	1	.986	.57	.01	.20	.19	.00	.00
						1.00	.05	1.00	1.00	.06	1.00
Wilks Λ = .813											
Micro-lesson 2, perception											
1	.36	.13	21.12	16	.792	.54	.07	.88	.43	.06	.75
2	.25	.06	8.86	9	.907	.12	.01	.13	.25	.02	.25
3	.17	.03	2.90	4	.968	.28	.01	.13	.17	.01	.00
4	.06	.00	.32	1	.964	.06	.00	.00	.15	.00	.00
						1.00	.08	1.00	1.00	.08	1.00
Wilks Λ = .792											
Micro-lesson 1, evaluation											
1	.32	.10	13.48	16	.862	.24	.02	.50	.26	.03	.75
2	.19	.04	3.92	9	.958	.27	.01	.25	.24	.01	.25
3	.08	.01	.69	4	.993	.20	.00	.00	.22	.00	.00
4	.02	.00	.04	1	1.000	.29	.00	.00	.28	.00	.00
						1.00	.04	1.00	1.00	.04	1.00
Wilks Λ = .862											
Micro-lesson 2, evaluation											
1	.45	.20	27.52	16	.738	.26	.05	.71	.26	.05	.71
2	.26	.07	7.13	9	.924	.28	.02	.29	.23	.02	.29
3	.10	.01	.89	4	.990	.25	.00	.00	.19	.00	.00
4	.01	.00	.00	1	.999	.21	.00	.00	.32	.00	.00
						1.00	.07	1.00	1.00	.07	1.00
Wilks Λ = .738											

Table 22. Canonical component structure. Student teachers' and educational experts' assessements during second term. Pupil-NPO relation. Micro-lessons 1 and 2, perception, evaluation

		Micro-lesson 1, perception								Micro-lesson 2, perception							
		b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4	b_1	l_1	b_2	l_2	b_3	l_3	b_4	l_4
76	Pupils' interest	.45	.66	.47	.73	-.13	.09	-.75	.18	.91	.93	.14	-.18	.24	.13	-.30	-.27
77	Presentation of subject	.51	.87	-.39	-.37	-.24	.17	-.73	-.27	.68	.20	.67	.94	.26	.30	.17	.02
78	Pupils' reaction to the subject	.65	.22	.18	.49	.31	.84	67	.03	.92	.89	.06	-.04	.38	-.28	.11	.37
79	Effect of TV studio on pupils	-.37	.25	.07	-.37	.33	.40	-.86	.80	-.20	.15	.04	.31	.93	-.70	-.31	-.63
		Micro-lesson 1, evaluation								Micro-lesson 2, evaluation							
76	Pupils' interest	-.08	.29	-.58	-.27	.03	.71	-.81	.58	.77	.94	.23	.32	.57	.08	.21	.09
77	Presentation of subject	-.60	.03	-.29	.94	-.71	.30	-.20	.18	-.18	.01	.35	.24	.76	.68	-.51	.70
78	Pupils' reaction to the subject	-.69	.20	-.44	-.01	.55	-.52	.17	.83	.65	.17	-.14	-.41	-.28	-.34	-.70	.83
79	Effect of TV studio on pupils	-.32	.96	.8	.14	.02	.02	-.66	-.25	-.01	-.37	.97	.76	-.13	-.45	.22	.30